

# American Artisan and Hardware Record

Sheet Metal—Roofing—Warm Air Furnaces—Stoves

Vol. 88. No. 26

CHICAGO, DECEMBER 27, 1924

\$2.00 Per Year



This is an ARMCO Ingot Iron Roof on the Old Sazerac Building, New Orleans. It has already seen fifteen years of service. The roof was applied by the Gulf Galvanizing Works.

## *Metal Roof of Famous Building Is Perfect After 15 Years Service*

THE durability of ARMCO Ingot Iron is the result of extreme purity. ARMCO Ingot Iron is the purest commercial iron ever produced in an open hearth furnace. It forms easily. The sheet metal contractor can do his best work with ARMCO Ingot Iron and know that it will last.

Send post card for booklet:

*"Economies in Building with Iron that Lasts"*



# ARMCO INGOT IRON

The American Rolling Mill Co., Middletown, Ohio, U. S. A.

(Export)

THE ARMCO INTERNATIONAL CORPORATION

Cable Address—ARMCO, Middletown, Ohio

# KRUSE

"THE WELDED STEEL FURNACE"

OIL  
HEATER



MANUFACTURED BY

**KRUSE CO.**

INDIANAPOLIS,  
INDIANA







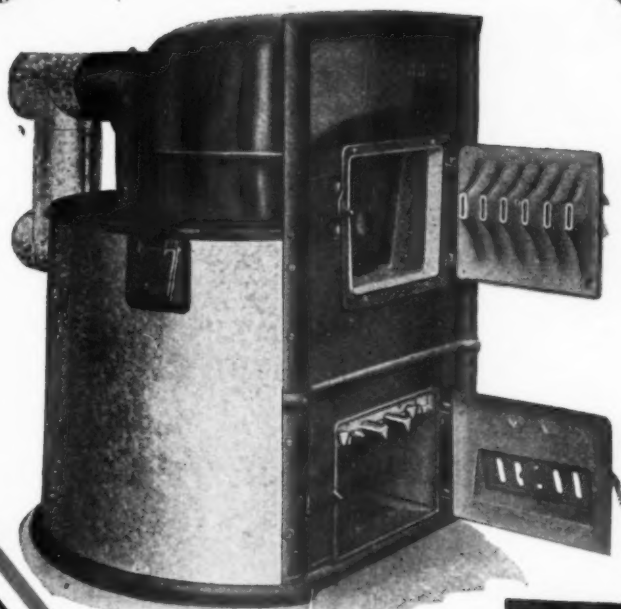


**THATCHER  
TUBULAR**

# THATCHER *Furnaces*



Write today for copy of this beautifully illustrated catalog. It describes in detail the complete Thatcher line.



**THATCHER  
SMOKELESS**

**Be  
Sure  
You Sell  
Reliability!**

ONLY many years of experience and success on the part of the manufacturer can assure the warm air heating contractor of unchanging reliability. Thatcher furnaces have been made by the same organization for over seventy-two years. Thatcher furnaces are guaranteed strictly high grade. Our immense production and the very latest of up-to-date equipment enable us to produce furnaces of superior quality at prices that are fair at all times.

### *You will like the Thatcher Agency*

Every Thatcher agency is valuable to use and we work with Thatcher dealers in a manner that assures reliable service and profits for them. Thatcher cooperation is complete and steady. You will be interested in Thatcher agency plans for 1925—write TODAY.

**THATCHER  
METEOR**

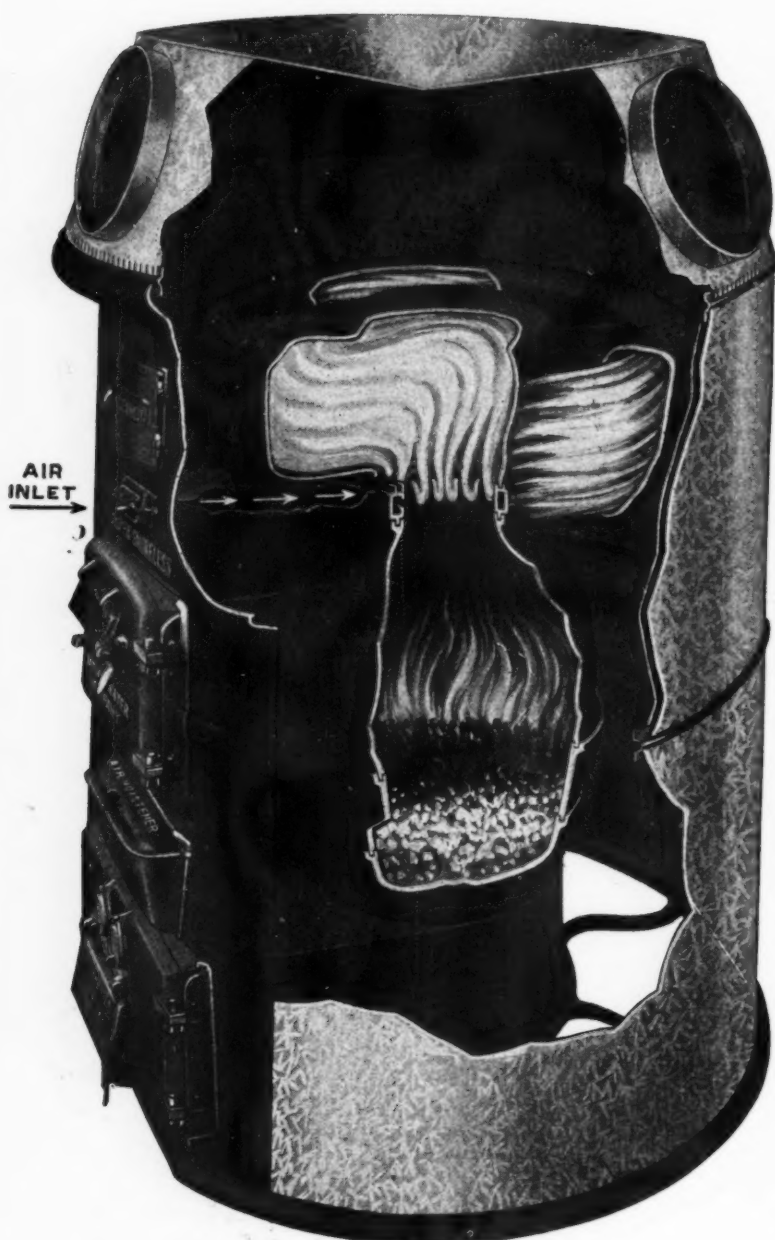


## THATCHER FURNACE CO.

341 N. Clark St. . . . . CHICAGO, ILL.  
133-135 W. 35th St. . . . . NEW YORK, N. Y.  
39-41 St. Francis St. . . . . NEWARK, N. J.



# THE UTICA HEATER COMPANY LINE



## SUPER-SMOKELESS FURNACES

Have all the special features of SUPERIOR Pipe and NEW IDEA Pipeless Furnaces. They are easily erected and quickly installed.

## START THE NEW YEAR RIGHT

### START THE NEW YEAR RIGHT

By selling the wonderful Utica Heater Company's line of Pipe and Pipeless Furnaces for every requirement. These furnaces are distributed through exclusive dealers and offer a wonderful business-building proposition. You can forget competition and land the cream of the warm air heating work all year round.

### THE UTICA HEATER COMPANY LINE

Includes SUPERIOR Pipe and NEW IDEA Pipeless, HEAVY DUTY, RECIRCULATOR, and ESSEX Furnaces, the SUPERIOR Positive Gravity Return System, and the wonderful SUPER-SMOKELESS Pipe and Pipeless Furnaces.

### SUPER-SMOKELESS FURNACES

Burn soft coal without smoke, utilizing the smoke and soot as fuel. They require less coal and generate more heat than other furnaces of equal size firepot.

### THOUSANDS ALREADY IN USE

Are enthusiastically recommended by home owners. The demand grows with every installation. Satisfied customers bring increased sales, and Utica Dealers are doing a bigger business every year, and stick to this line. Their customers are pleased, the installation of the furnaces is easy, and the profits are worthwhile. Send for exclusive dealer proposition today.

Originated and Manufactured by the UTICA HEATER CO

# OF PIPE AND PIPELESS FURNACES



## SUPERIOR PIPE FURNACE

With Patented Casing Connection, Direct Connected Cleanout, One-piece Cast Radiator, Frameless Feed Door, Large Air Moistener, Anti-Clinker Grates, Roomy Ashpit and Frameless Ashpit Door.



## NEW IDEA PIPELESS FURNACE

Triple Galvanized Casings, with patented "slip-on" connections, scientifically correct Type "A" inner castings with valuable and exclusive improvements to assure gastight, dustproof operation.

COMPANY, Utica, N. Y., 218-220 W. Kinzie St., Chicago, Ill.

# easier to sell

**H. M. MAGINOT SALES CO.,**  
WARM AIR, HOT WATER AND STEAM  
HEATING SYSTEMS.  
BUILDING EQUIPMENT.  
136 FAYETTE STREET.  
MILWAUKEE, WIS.  
H. M. MAGINOT  
NOVEMBER 7th, 1923.

**L. J. Mueller Furnace Co.,**  
Milwaukee, Wis.

Gentlemen:-  
My dealings with your Company have been and are very satisfactory.  
Before taking on your line I personally visited many furnace factories, investigated their service and methods of doing business, but in the end I was satisfied that you have the goods.  
Other manufacturers give service, but I have yet to find one to equal the Mueller engineering. Consumer circularizing, newspaper advertising and shipping service. But even should I forget the service, its the articles that counts. Many dealers ask me why I handle the Mueller line as it is too high priced a line to sell, but if we compare prices Mueller's is far above the rest. And when I put in a Mueller, especially the Tubular or double radiator job, I got the satisfaction of giving the Customer a real "Honest to God" heating system and besides I get a better margin on it than the tubular, and besides I got an in a class all by myself with the tubular, and besides I got the circle radiator job to fall back on when it comes to a price.  
So after all is said and done I feel that the L. J. Mueller Furnace Co. is more than a Furnace & Boiler factory and one thing I am sure of is that they are Manufacturers of "DEPENDABLE HEAT" heating systems.

Sincerely,  
H. M. MAGINOT SALES CO.  
*Henry M. Maginot*

**KRAUS BROTHERS**  
Tin and Sheet Metal Work  
Furnaces and Radiators Repaired  
310 MAIN STREET  
KEOKUK, IOWA. Nov. 13, 1923.

**L. J. Mueller Furnace Co.,**  
Milwaukee, Wis.

Gentlemen:  
Every dealer is interested in a plan that will increase his sales and your Franchise Dealer plan has certainly done this for us.  
Your advertisements in the Chicago Tribune listing our name has given us a great deal of prestige and a great many of our customers were brought to us through this channel.  
We have been especially pleased with the assistance of your salesman in calling on prospects and enabling us to close difficult sales.  
Your Engineering Service has also been of great value and our customers know the "DEPENDABLE HEAT" you are advertising is "DEPENDABLE" in every sense of the word.  
We will be glad to recommend the Mueller Franchise Dealer plan to any dealer for we know it will give him the same benefits it has given to us.

Very truly yours,  
KRAUS BROTHERS  
*W. J. Kraus*

**LOUIS E. SCHAEDE**  
Sheet Metal and Furnace Work...  
3017 80. HALSTED STREET  
CHICAGO, ILL.

**L. J. Mueller Furnace Company,**  
Milwaukee, Wisconsin.

Gentlemen:  
When your representative called upon me and explained your merchandising plan, I could not see any other way than to accept proposition.  
I had never been offered such a plan where the dealer received five credits for each to your advertising and exceptional assistance of your sales force.  
Your easy payment plan has enabled me to make quick turnover and more sales.  
I am very optimistic about being considered a Mueller Franchise dealer.

Yours very truly,  
*Louis E. Schaele*

**DESMOND & HORN**  
HARDWARE, STOVES, PAINTS, OILS  
Pipe Fitting, Plumbing and Heating a Specialty  
Mukwonago, Wis. Nov. 20, 1923.

**L. J. Mueller Furnace Co.**  
Milwaukee, Wis.

Gentlemen:  
We feel it a duty to let a firm know the kind of service that is being rendered, good as well as bad.  
The help and cooperation given us by your salesman and engineering department have been invaluable the past three years.  
Your Franchise Dealer's Plan has met with our hearty approval and we hope you continue it another year.  
The advertising and merchandising done by you have added to our sales and we will start the new year with another carload of Mueller Furnaces.

Yours for Dependable Heat  
*Desmond & Horn*

# MUELLER

— dependable heat —



# than sell against

## A Proved Fact—

Mueller Furnaces are easier to sell than to sell against because they are **quality merchandise all the way through** and have important exclusive selling features.

Secondly, Mueller Furnaces are easier to sell than to sell against because the Mueller dealer receives ways and means of selling furnaces that other Mueller merchants have proved profitable.

Mueller is just as thorough and painstaking in **selling** furnaces as in **making** them!

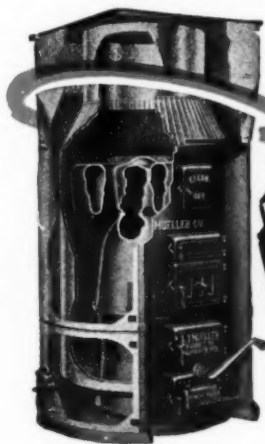
For these reasons, the Mueller line pays a better profit. And that is the chief reason why any dealer would want to sell Mueller Furnaces in 1925. Are you willing to talk it over with a Mueller man? The coupon pinned to your letterhead will bring him.

### L. J. MUELLER FURNACE CO.

Makers of Warm Air, Steam, Vapor and Hot Water Heating Systems, Registers, Pipe and Furnace Fittings.

193 Reed St., Milwaukee, Wis.

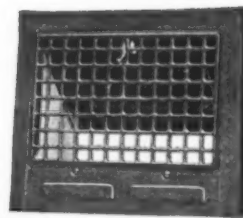
Branch Warehouses: Brooklyn, Boston, Baltimore, Detroit, St. Louis, St. Paul, Minneapolis, Salt Lake City, Seattle



Convector—the Mueller heating system without pipes. Straight air passages—gentle circulation. 100,000 satisfied users.



Mueller Double Radiator Furnace — a self-cleaning, warm air furnace with more direct heating surface than any other furnace of equal size fire-pot.



Reserve stocks of Mueller time-and-labor-saving registers, pipe, and furnace fittings make certain shipment when needed.



# FURNACES

tons of coal cheaper

L. J. Mueller  
Furnace  
Co.  
193 Reed St.  
Milwaukee, Wis.

I'm interested—but  
your man will have  
to show me! Have him  
call

Firm name \_\_\_\_\_

By \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**A** HEATING PLANT is an important part of every man's home.

You as a Warm Air Furnace Heating Contractor occupy, in the minds of home owners, a vital, important place.

The thoughts of the prospective buyer of heating is *heating service—correct heating principles and a sound economical investment.*

Warm Air Furnace Heating provides these requirements in greater abundance than any other system of heating.

You should feel that you *do* occupy an important position in the heating field.

If you do not you will stand by and see important business and profits go elsewhere.

Sell Better Warm Air Heating—sell better furnaces and do better installation work and you will receive better profits.

The Weir Furnace is a good furnace—a furnace that meets every exacting requirement.

The Meyer Furnace Company maintains an Engineering staff to help you with your installations and in every other practical manner aid you in providing Better Warm Air Heating for your customers.

**The MEYER FURNACE CO.**  
Peoria, Illinois

*The one  
proven  
Warm Air Furnace  
for Oil Burning*

WITH the Weir—Oil Burning in Warm Air Furnace is proven practical and desirable. The Weir because of its proper design and non-leakable construction has won the endorsement of leading Oil Burner Manufacturers. We are now making and furnishing to the trade the Weir furnace especially designed for the installation of Oil Burners. Do not fail to obtain your share of business thru the growing demand for oil burning.

Have us tell you now about the Weir  
Oil Burning Furnace

**Weir**

# Unbeatable, hard facts that sell the *Weir* for you—

The steel is Special Steel made especially for the Weir.

Each plate conforms to our rigid specifications. Every Weir steel plate is uniform in thickness, strength and composition. The Weir furnace never falls below this high standard of reliability.

The Weir Gas and Soot consuming feature is built in and is a main part of the Weir. Notice the special patented design of the Weir Fire Pot. The air enters at the front and circles around the fire pot, becoming thoroughly heated before entering above the fire.

Radiating surface is greater in the Weir. The auxiliary drum alone has more heating surface than some furnaces. This extra radiator is correctly designed outside and inside, providing extra long fire travel.

There are no seams in the Weir—electric arc welding makes it one piece and leak-proof. To insure against suction of dust through the casing from the basement a special leak-proof double casing ring is used at each casing joint. No other furnace has this feature.



The Weir provides an unusually great amount of moisture. Notice the generous size water pan located at the proper place—where the fire is hottest, near the pipes and at a point where it cannot interfere with the circulation of air.

The double feed doors on the Weir measure 17 inches wide and 14 inches high. Made in two sections and amply large enough for ordinary firing without opening upper section. Ash pit is large and roomy and the large door makes cleaning easy.

All doors are machine finished and perfectly fitted. The cast parts of the Weir are smooth, heavy and durable. Special base ring insures perfect air tight fit and easy erection. The Weir is easy to operate. It burns any fuel economically. The grates are the simplest made and they withstand heavy use for many years.

The Weir is an entirely different furnace—top notch quality in every particular. Each Weir bears a brass serial tag of its own. This enables you and us to keep track of each Weir Furnace made. It is a furnace worth keeping track of individually.

**Warm Air heating system is Best For the average Home**  
Convince the public by telling them constantly

**GAS AND SOOT  
CONSUMING**

# Steel Furnace



Write for your copy  
of  
"The Weir Book of Facts"

IT is a very useful book for every warm air furnace heating contractor. It contains much information you can refer to often—it contains also the Standard Code in large easy to read type. It is a catalog of the Weir Furnace and in it you will find illustrations and complete detailed description of the Weir line.

Just say "Send me The Weir Book of Facts."



# W

**T**HE first Wise furnace cast was a good, wisely designed and constructed furnace. That was over twenty years ago and we have broken the mold many times since then but only when we could make a better one from better patterns.

The original quality of goodness has never been lowered nor have we ever lost faith with our hundreds of dealers.

Wise furnaces are sound in construction, principle and value. You will find merit in abundance and at a price that spells true economy for your customers.

The more you know about furnace design the better you will recognize the quality construction of Wise Furnaces.

Write today for the Wise catalog and read over the mechanical details now.



*The Wise*  
AKRON



# SEE

**I**F the territory in which you are located is not now represented by an exclusive Wise furnace dealer and you are ready to do more business and make bigger profits by selling a high quality furnace that is manufactured and merchandised on a plan that makes more sales and profits for you, we want you to read the Wise agency plan now.

Wise dealers stick and they build up profitable, reputable furnace businesses because they become known as warm air heating contractors of the highest type.

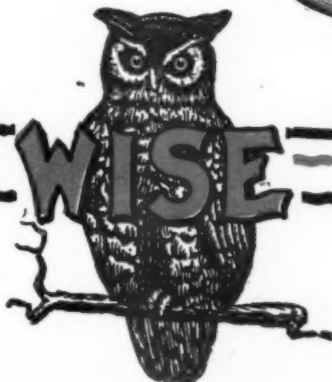
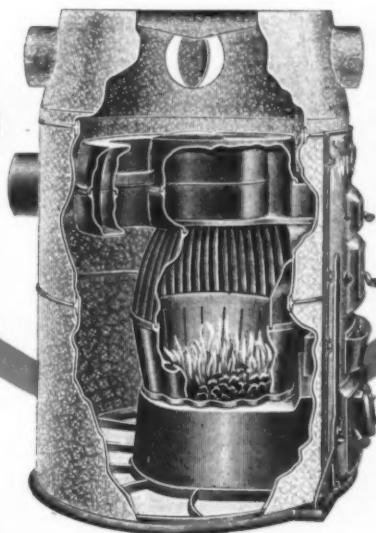
Wise dealers sell Wise furnaces because Wise people buy Wise furnaces.

A few very choice territory agencies are open for the exclusive sale of Wise Furnaces for the coming year.

We want to get in touch with dealers who are in a position to handle a large volume of sales and who can and will correctly plan and make proper installations.

These territories will yield a big income to the right dealers. Write today.

**Furnace Co.**  
OHIO



# Here's the Big, Sensational News

## An Entirely New Line of

# MONITOR FURNACES

Pipe and Pipeless

**T**HIS is Monitor's answer to the requests of dealers for a line of furnaces to sell at prices to most effectively meet the competition of the cheaper type of jobs.

Not since pre-war days have such values been offered! Compare the sensationally low prices and specifications of this new Monitor Line with others on the market! Nowhere can you equal them.

Keep in mind that these furnaces are scientifically designed, generously proportioned, and superior to others selling at much higher prices. The same good quality materials, the same skilled workmanship that have made Monitor products famous in the past are put into this new line.

With Monitor furnaces you have this tremendous price advantage, the manufacturer's reputation—of more than 105 years standing—for building highest quality heating appliances, a trade name that has been placed on hundreds of thousands of furnaces and that has been backed by one of the largest advertising campaigns in the history of the industry. It isn't like selling an unknown line in a competitive market.

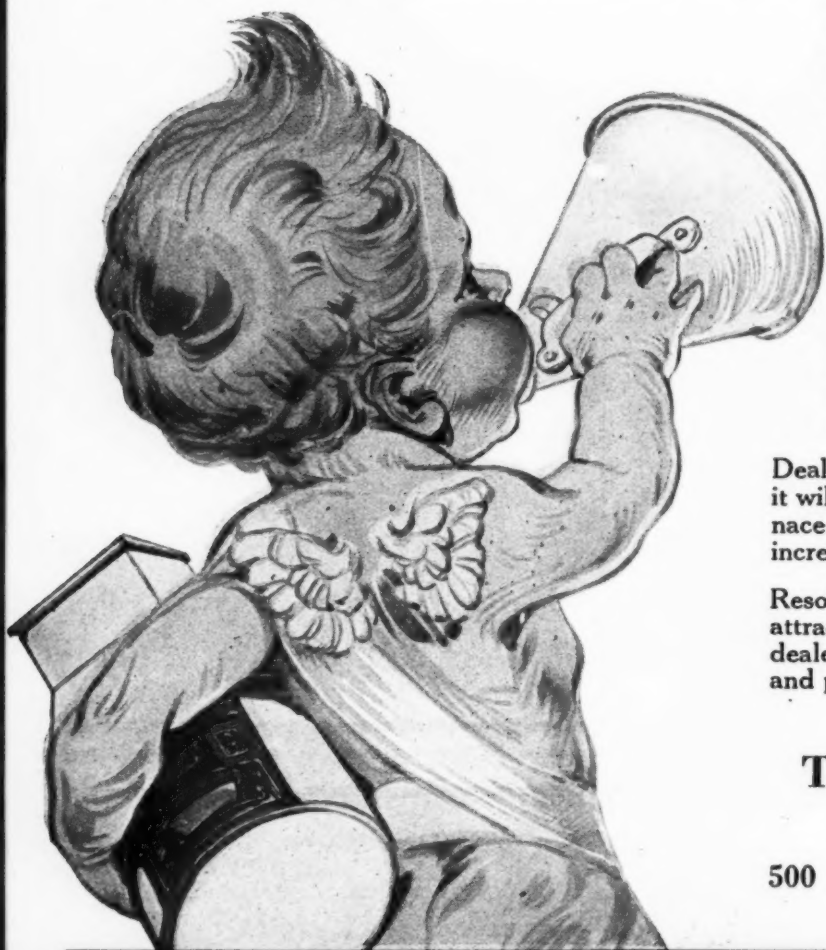
Dealers who have seen this new line tell us that it will enable them to dominate the cheaper furnace business. Their profits are coming from increased sales and wider margins.

Resolve now to "cash in" on the most attractive proposition ever offered to furnace dealers. Write today for complete information and price list A. A.

**The Monitor Furnace Co.**

*(106 Years of Heating Service)*

500 Woodrow Street, Cincinnati, Ohio





# News of the Furnace Industry

**D**EALERS are asking us how we can offer such high quality furnaces at these ridiculously low prices. Our answer is: Quantity production in one of the largest furnace factories of the world.

The most modern machinery has been installed to reduce costs. The latest methods for operating it have been adopted. Our buyers obtain lowest market prices on raw materials.

## Monitor Pipe Furnaces

**\$46<sup>00</sup>**

18-in. Firepot—Carload Shipments

## Castings Only

**\$39<sup>50</sup>**

18-in. Firepot—Carload Shipments  
Prices of other sizes in proportion

The Monitor Manufacturing Program for 1925 enables us to make these low prices in advance of the season. It is therefore good business on your part to protect yourself now for all or a part of your yearly requirements.

## CASH DISCOUNT

A cash discount of 6 per cent will be allowed on NET amount of invoices if payment is made within 10 days from date of invoice.

All prices are F. O. B.  
Cincinnati

## Monitor Pipeless Furnaces

**\$70<sup>00</sup>**  
Complete

18-in. Firepot—Carload Shipments  
Prices of other sizes in proportion



# *A New 4 Way Plan that Sells*



1

2

3

4

**Selling**  
FURNACES  
by the  
CAR LOAD

**The Best Known**  
"Heating" Man  
in Town

**For the Man**  
with a Home  
to Heat

KNOW YOUR COSTS  
and PROFITS by  
KEEPING SIMPLE  
RECORDS

**SUN**  
PIPE and  
PIPELESS

# Sunbeam Furnaces

## *by the Car load*

Here's a new development in the furnace business—a new method of selling furnaces—a plan for helping Sunbeam dealers that's 4-ways NEW! It's an entirely original operating program for the dealer who is ready to *think* and *sell* furnaces on the carload basis.

This new Sunbeam proposition is the result of a wide study of furnace dealer operations. It takes the best of the methods of hundreds of successful Sunbeam dealers, and combines them with new and practical business methods. It involves every phase of the furnace business which will in any way increase sales and ultimate profits. It deals with the big and important problems, it deals with the little things, too, and forms a most complete "plan of action" for the furnace dealer.

On the opposite page are shown the four volumes in which this great new 4-way plan is now being presented by Sunbeam Representatives.

1. *Selling Furnaces by the Car-Load.* This first volume presents a true picture of the retail furnace business and shows exactly how to accurately estimate the sales opportunities of each individual dealer. It deals with the market facts. It presents a definite plan for capturing the major share of the available business.

2. *The Best Known Heating Dealer in Town.* This great Sunbeam Ad Book illustrates and describes the most complete plan of co-operative advertising ever presented to the Furnace Dealer. It covers a new and original "personal letter" mailing campaign, a method of direct advertising that has been used with great success by dealers in many other lines of trade.

3. *For the Man with a Home to Heat.* This valuable book covers the most modern

"Sales to the Owner" plan ever devised for furnace dealers. It's the type of equipment we furnish *your* salesman for use in direct solicitation of business. It contains a complete presentation of the product—Sunbeam Furnaces.

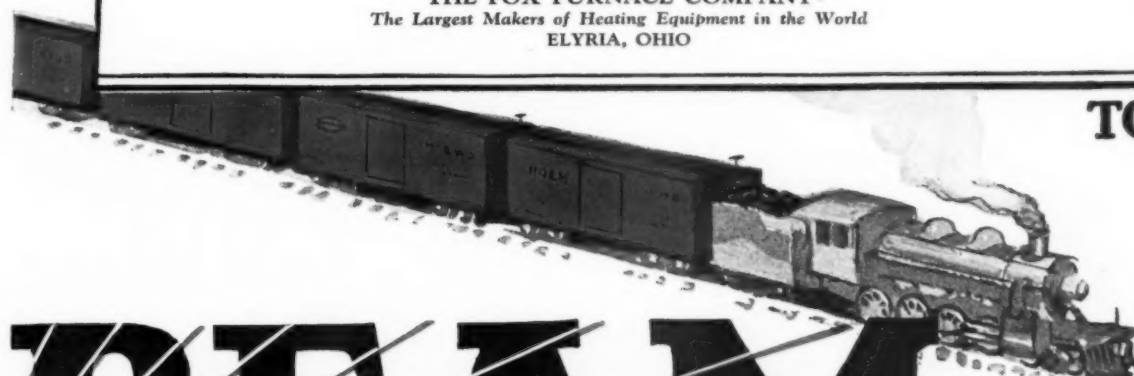
4. *Know Your Costs and Profits by Keeping Simple Records.* This book describes simple methods and records of cost estimating and bookkeeping that help the dealer to plan and operate his business for greater profits. Standard forms for these records are offered to Sunbeam dealers.

This set of books gives you information that will be of the greatest value to you in your effort to increase business in 1925—and it is available to you if you will use the coupon or write us at once.

THE FOX FURNACE COMPANY  
The Largest Makers of Heating Equipment in the World  
ELYRIA, OHIO

USE  
THIS  
COUPON

TODAY



# BEAM FURNACES

THE FOX FURNACE CO., ELYRIA, OHIO  
I am interested in your 4-way plan of selling furnaces by the car-load and would like to know more about it. It is understood that this request places me under no obligation.

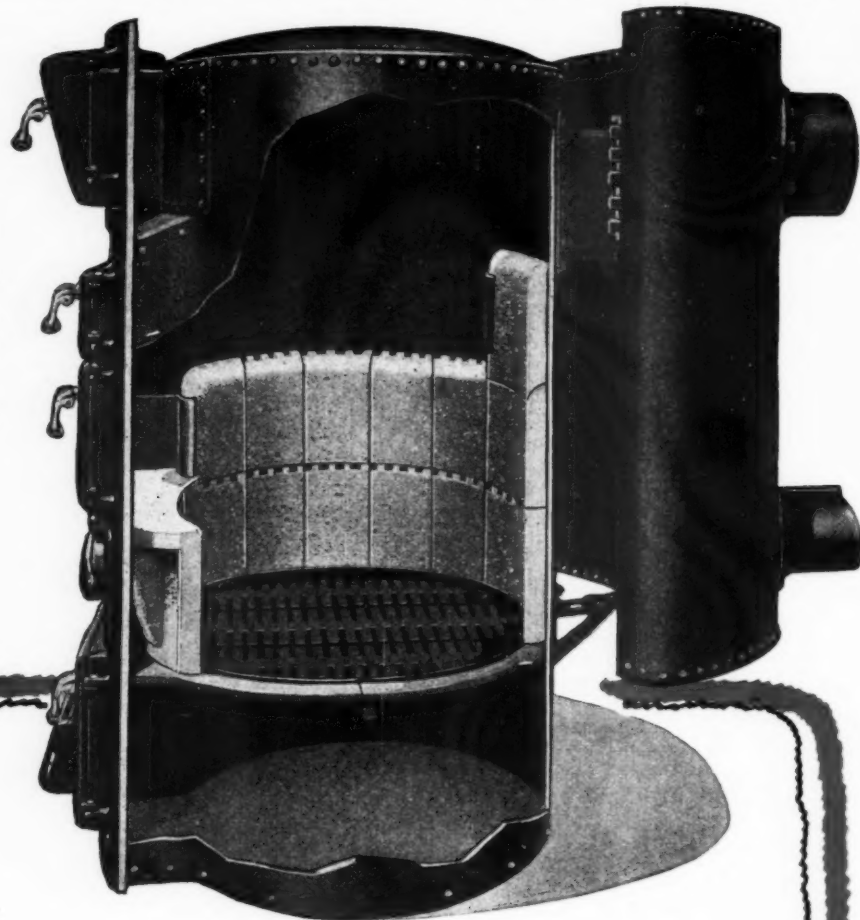
Name.....  
Address.....  
City and State.....  
A.A.-12-24



**I**N choosing your line of furnaces you will of course endeavor to make an agency connection that will bring you good profits. This is as it should be—yet to put a big margin of profit and a low selling price far and above all other considerations always acts as a boomerang to any business. Consequently profits over a period of two or three years on such a basis are always much less than at first anticipated.

The benefits of placing high quality, durability, heating efficiency and true economy first on your list of furnace requirements are numerous but the one proven advantage that should lead your attentions to this policy is that your profits will be much greater.

## Standard SERVICE HEATER



**Success**

**T**HE Success Heater Agency will make good profits for you on the very highest policy of quality and service. Success Heaters are built of the finest grade of rust resisting steel and made absolutely leak-proof. They are successfully designed to render exact heating efficiency economically. They cost less than folks are willing to pay for them.

You should in fairness to your desire to make the best possible profits investigate thoroughly our agency plan for 1925.

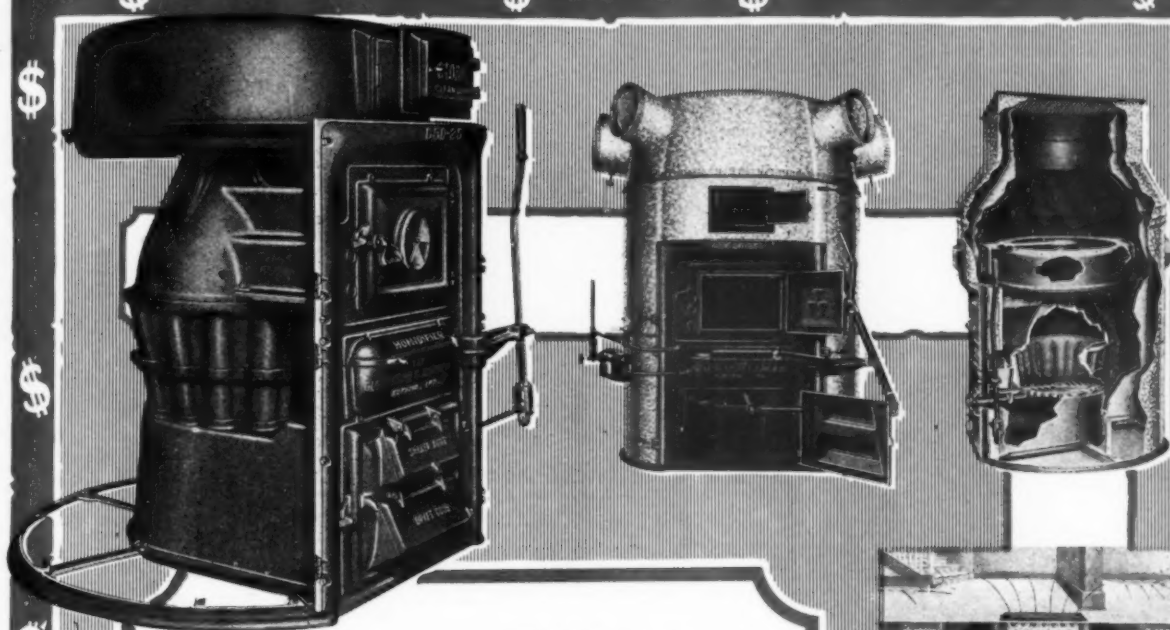
Success Heaters will give you the prestige that you seek—they will give your customers the service they demand.

*Our catalog gives complete detailed information and illustrations of the entire Success Heater line. Write for your copy today.*

**Heaters**



**Success Heater Manufacturing Company**  
Des Moines, Iowa



### *Dividends In Dollars and Satisfaction!*

Furnaces—honestly built—the last word in design and equipment.

Complete line of sizes and styles.

A *superior* standard of finish and mounting. Leak-proof and trouble-proof installation.

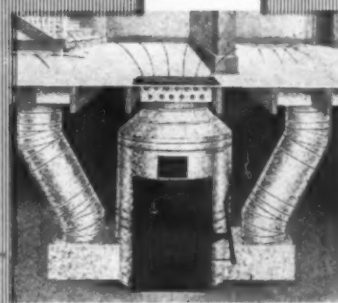
The cost to you surprisingly low. Your re-sale margin surprisingly large. An agency plan that has contributed to the success of over one thousand dealers.

A sales plan that *works!*

The CLINCHER and portfolio of salesman's photos. 23 pages of golden facts with the order getting *kick*.

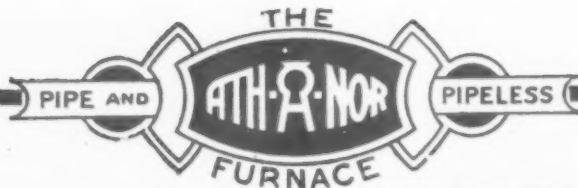
*Mail the coupon today.*

**The Globe Stove & Range Co.**  
Kokomo, Indiana



# GLOBE

The Globe Stove and Range Co.,  
Kokomo, Indiana.  
I am interested. Send complete details  
of the Globe Dealer Plan for 1925.  
Your Name.....  
Firm Name.....  
City and State..... A-A-12-24



## *Sell a line of furnaces That will build up your business*



**C**ENTER your thoughts on securing sales for furnaces that will stamp you as a heating contractor of the first grade and you will be sure of selling a line that will give you added profits.

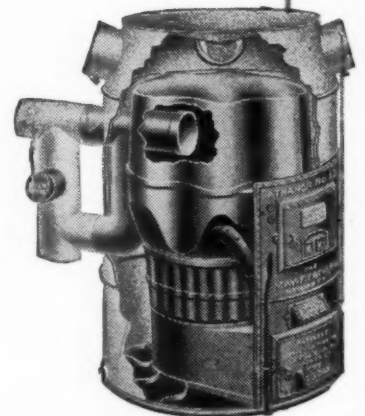
The Ath-A-Nor line of furnaces has a reputation for quality—you sell known results and convincing features.

**ATH-A-NOR FURNACES**  
*are designed and constructed  
to give the highest type of efficient  
and economical heating*

**A**TH-A-NOR furnaces are noted for being exceptionally powerful and durably constructed of extra fine pure grey iron.

We want you to study the Ath-A-Nor line in every particular—you will find many exclusive features and you will be interested in our somewhat different agency plans.

*Write us today for complete catalogs,  
circulars and agency plans.*



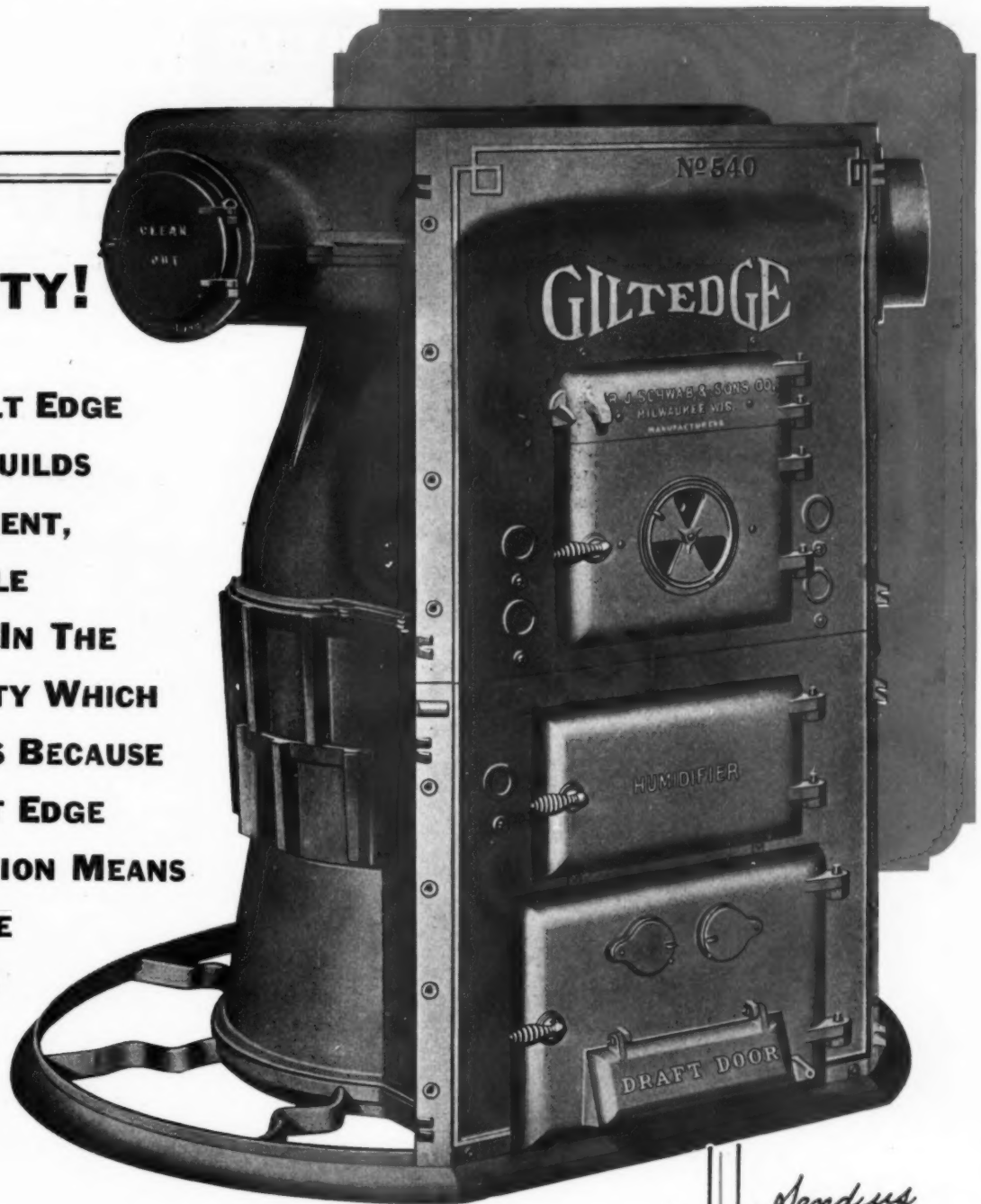
*The ATH-A-NOR with  
the famous THREE-  
WAY AIR BLAST.*

**THE MAY-FIEBEGER FURNACE COMPANY**  
NEWARK, OHIO



## QUALITY!

**EVERY GILT EDGE  
DEALER BUILDS  
A PERMANENT,  
PROFITABLE  
BUSINESS IN THE  
COMMUNITY WHICH  
HE SERVES BECAUSE  
EACH GILT EDGE  
INSTALLATION MEANS  
ONE MORE  
BOOSTER!!**



*It will pay you to investigate*

**The Straight Ribbed Fire Pot**

# GILTEDGE

## FURNACE

MANUFACTURED BY

**R. J. SCHWAB & SONS CO.**

279 Clinton Street

DEPT. C

Milwaukee, Wis.

*Send us  
your name  
and address  
on a one  
cent post-  
card and  
we'll send  
you some  
convincing  
facts!!*



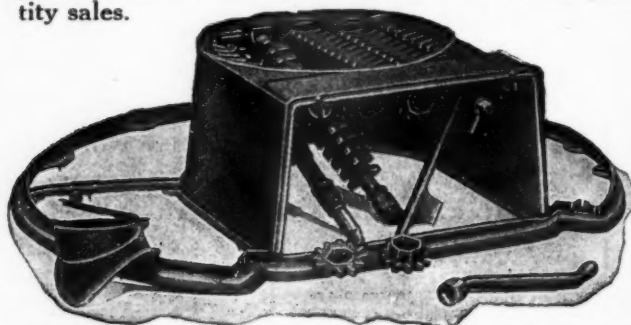
# WARM AIR FURNACES

*A Quality Product at a Quantity Price*



Series  
No. 1000

EVERY part of the Wiechert Furnace is made in our plant, and all materials used in the construction must pass the most rigid tests, under the direct supervision of officials of the company. We have built a furnace that will last for years and have placed it on the market at a price that assures quantity sales.



THE Ash Pit in "Wiechert" Furnaces is fitted with triangular revolving grate bars, working in pairs connected with cogs. Entire grate can be removed through the ash pit door.

THE Fire Pot is cast in two heavy sections, the middle joint allows for expansion and contraction. Outside ribs on both upper and lower sections strengthen the pot and give additional heating surface. "WIECHERT" Fire Pots have double-lock joints and are gas and dust proof.



Series 1000 Furnace have self cleaning Radiator. Series 100 are made with Top Radiator horse shoe style.

Wiechert Furnace comes in size and style for every purpose.

*Write factory today for attractive Dealers Prices*



Series  
No. 100

## ST. CLAIR FOUNDRY CORPORATION

North Illinois Street

Dept. A

Belleville, Illinois

Chicago Distributor: Chicago Furnace Supply Company, 1276-82 Clybourn Avenue, Chicago, Illinois

*Many excellent features  
Built correctly of highest grade iron  
Guaranteed perfect fit—easy to erect  
High in quality—low in price*

Pipe

# VERNOIS

Pipeless

**S**TART the new year with the VERNOS. You will obtain results which will warrant you in selling the VERNOS for years to come.

The VERNOS helps establish your good will. It gives efficient and lasting service—satisfied customers. Satisfied customers are one of a furnace installer's best mediums of advertising.

The VERNOS meets your customers' requirements—the price is right.

Read  
these  
descriptions

Write for convincing details now

Write today  
for our  
Catalog A52

**RADIATOR** is exceptionally large. Has more radiation surface than any other radiator of its type. Joint is made permanently tight by the use of heavy bolts placed at close intervals. Radiator will swing to place smoke collar in any position.

**COMBUSTION DOME** built extra heavy to withstand the constant strain of flames striking against it. The opening at the top is large enough to admit the passing of the burning gases into the radiator and yet not so large as to allow the gases to rush out unconsumed. A pocket is cast into the side of feed section so that the water coil when installed will not interfere with firing.

**TWO-PIECE FIRE POT** allows for expansion and contraction. Made extra heavy and corrugated to give increased radiation surface. The lock-cup joints are deep and are sealed with asbestos cement when erected.

**LARGE ROOMY ASH PIT.** Joints are deep and fit tight. Heavy triangular grate bars—can be removed in one minute. No grate rings, cotter pins or bolts to barn out.

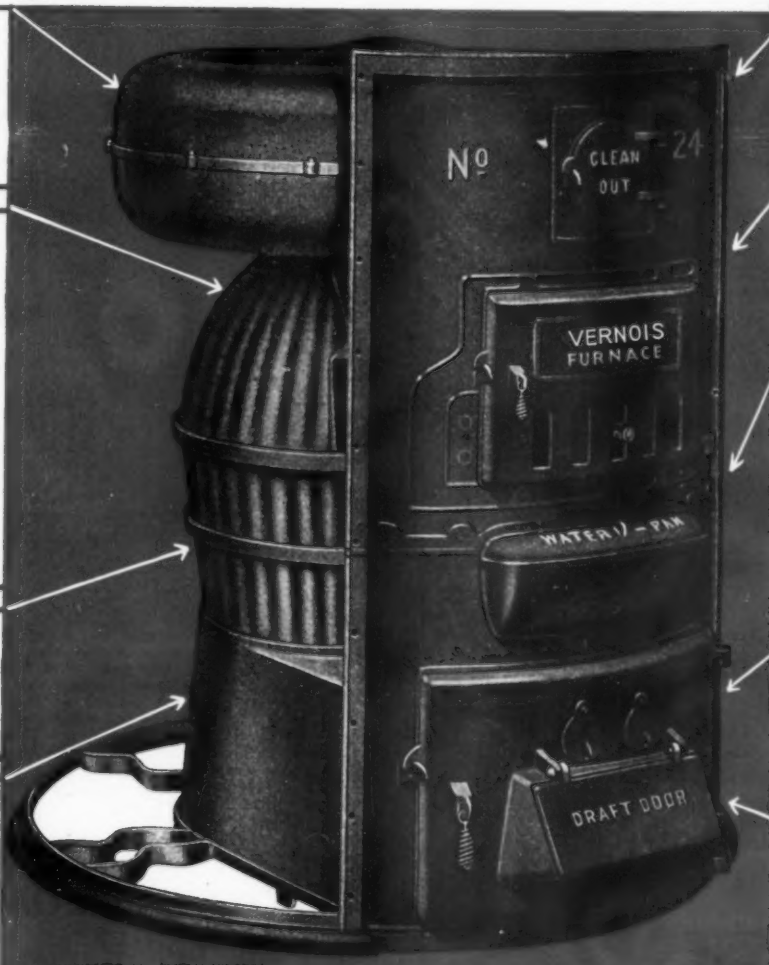
**FULL CAST FRONT.** All castings fit perfectly. Weights throughout are properly distributed.

**FIRE DOOR** made extra large to permit firing large chunks of coal or wood.

**WATER PAN** is of ample capacity so placed that the water evaporates rapidly. This produces a balmy warm air conducive to health and comfort. Handy to fill.

**ASH-PIT door** is well fitted and full width of ash-pit for convenience in removing ashes.

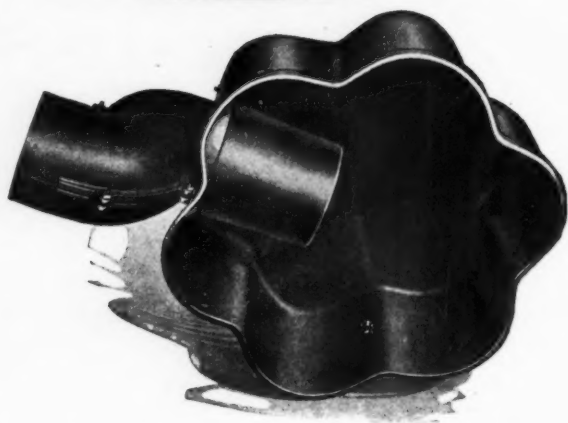
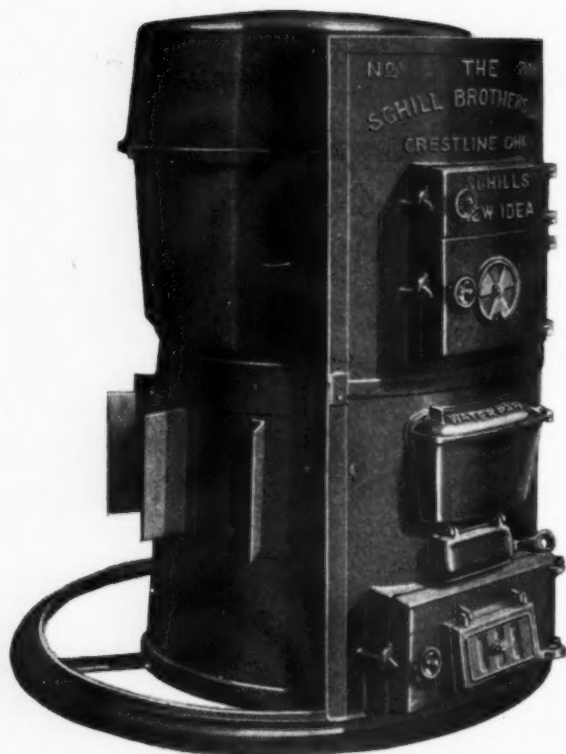
**DRAFT DOOR** is large and adjusted by a convenient regulator plate placed in one of the rooms above.



**MOUNT VERNON FURNACE & MFG. CO.**  
MT. VERNON, ILL.



# Schill's New Idea



**T**HIS illustrates the Schill's New Idea self-cleaning radiator.

It is built for real durability, economy of fuel and large radiating surface. It sets into an exceptionally deep joint in the feed section. Notice that the flue collar is near center of radiator allowing uniform heating all around. The best quality of pure iron is used in all Schill's New Idea Castings and the thickness, design and workmanship are unexcelled. Write for circular giving complete description of every part of Schill's New Idea.

## The progressive dealer

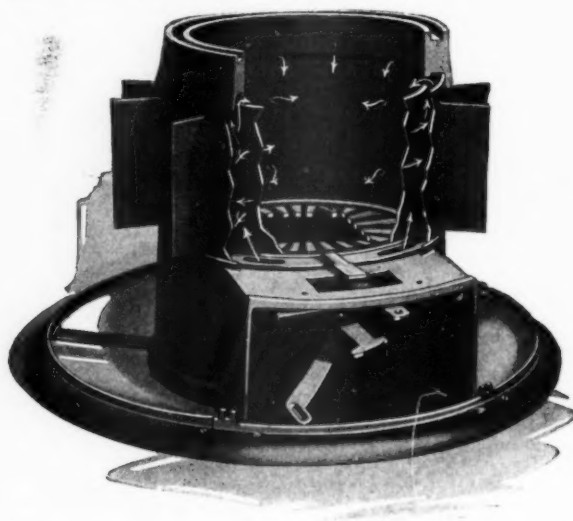
will sell a better furnace the coming year. He wants real quality and soundness of construction. He wants features that will appeal and mean something to his customers. He will be sure that the manufacturers of that furnace are equipped in all respects to insure reliability.

For over thirty-five years Schill's New Idea has been manufactured and constantly improved.

Today it contains all the things that live dealers and their customers want and

## features of construction not found in any other furnace

Schill's New Idea Furnace and our liberal agency plan will put your business on a bigger profit producing basis. Let us tell you all about it. We have an attractive convincing circular for your prospects. Send for it—read it and see why they will buy Schill's New Idea.



**T**HIS feature is one of the many that make Schill's New Idea a better furnace. Notice this is a double pot. The air chamber between the pots is 2 inches wide and has a draft connection at the front. Eight one-inch holes in the inner pot and an opening all around at the top allows the thoroughly heated air to enter the fire mixing with the gases and smoke thus producing complete combustion. There is no weight on this inner fire pot. This feature allows the burning of the cheapest kind of fuel. It eliminates puffing and explosions when fire is covered and allows fire to burn evenly on the outside where heat can be best utilized.

Write for our circular "What's What About Schill's New Idea Furnace."  
It will interest you.

The **SCHILL BROTHERS COMPANY**  
CRESTLINE, OHIO

# Furnaces

# You must read about these Furnaces



**I**N announcing the New Oakland Furnace, both dome and round radiator type, we are offering same to the trade with the thought of "No apologies to make". The patterns and general constructions were made up by a competent practical heating engineer who has embodied all features in Oakland furnaces which are essential for a furnace to function properly in every respect.

**F**OR economy and refinement they have no equal. The new self-cleaning feature is only one of the many handy points of the New "Oakland". It is impossible to tell you all the important points in this message. But if you will allow us to send you complete literature and prices, you will realize we have made a furnace you can easily sell and recommend.



*Write factory today for prices  
and detail specifications.*

## OAKLAND FOUNDRY COMPANY

Belleville

Illinois

# HOME RIVERSIDE



## A FURNACE OF MERIT



THE trade name RIVERSIDE was established in 1872. Through years of experience, the public has come to recognize this stamp of quality. This is borne out by the steadily increasing demand for Riverside Furnaces.

Our trade mark is your guarantee that only the best material obtainable and the finest workmanship have gone into the making of this furnace.

NOTE the Riverside air blast draft illustrated above. This makes it possible to burn the cheaper grades of soft coal without soot and still get plenty of heat. This feature alone means a great saving in fuel.

## THERE IS PROFIT IN A FURNACE OF KNOWN QUALITY

EVERY Home Furnace is mounted complete before it is shipped out. Each part will fit properly when putting it in place. This means a great saving in labor.

Notice the many special features embodied in this furnace. Self-cleaning radiator which never chokes with soot and always gives full heating power. Three inlets from combustion chamber to radiator divides heat intensity and prolongs life of furnace. Nearly straight side heavy corrugated fire pot. A hot Blast draft which is regulated with a chain from the rooms above (see illustration above). A great amount of direct heating surface.

### *You Know Furnaces—Have You Studied Ours?*

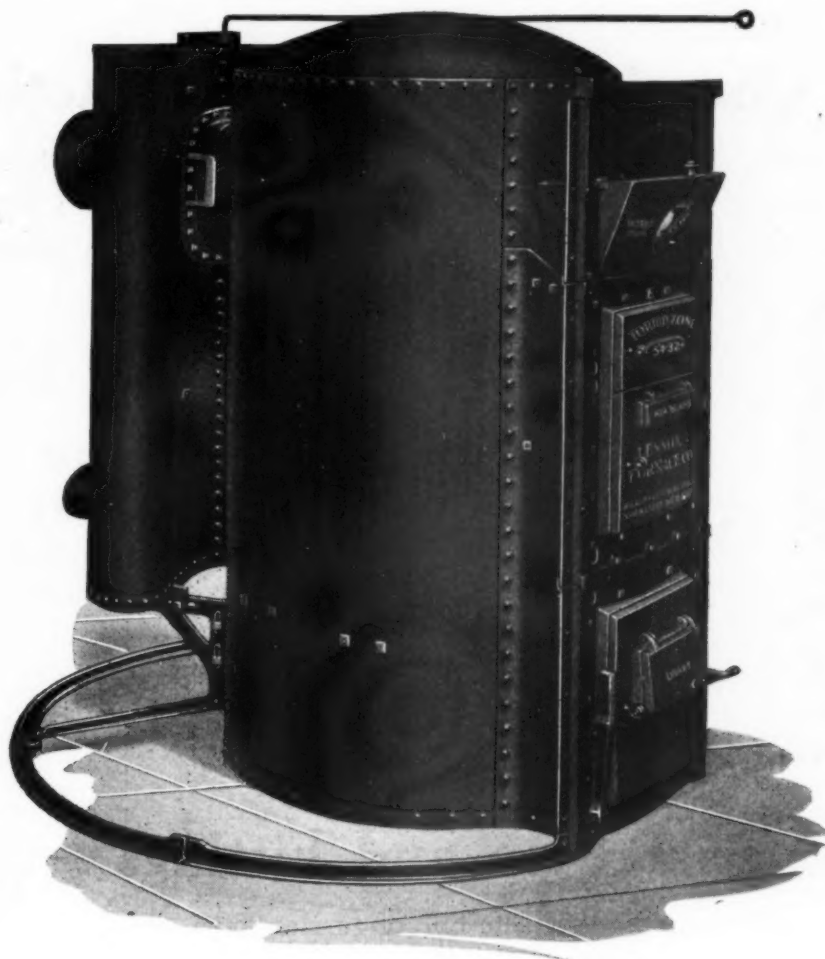
Ask us about our 1925 selling plans and we will give you full particulars about how we co-operate with our dealers to move the goods off their sales floor. These plans are well tried and bring results.

*Plans and estimates furnished free*

**ROCK ISLAND STOVE COMPANY**  
**ROCK ISLAND, ILL.**



## ANNOUNCING THE IMPROVED TORRID ZONE STEEL FURNACE



### THE ONE QUALITY FURNACE IN A COMPLETE LINE

**N**OT a new furnace—but an improved furnace with greater radiating surface, larger casing area, and a water pan that will supply ample moisture to the air. Grates are of the locomotive type, but arranged so they can be shaken without opening the ash-pit. The design of the front is changed, but is built to add to the efficiency of the furnace. **TORRID ZONE** furnaces will be made of heavier steel and backed by our ten-year guarantee. The only furnace in America with an up-keep guarantee for ten years. **The agency is bound to make profits for you.** Write for complete information and details of the **IMPROVED TORRID ZONE FURNACE.**

### THE LENNOX FURNACE COMPANY

MARSHALLTOWN, IOWA

SYRACUSE, NEW YORK

# A Complete Furnace Line

## For Complete Heating Satisfaction

**N**O matter what that warm air heating job calls for, there is a Moncrief Furnace for it and a full line of Moncrief Pipe and Fittings. They will satisfy you both in quality and in price.



## *The Development of 30 Years in Furnace Making*

**T**HE Moncrief Line is made up of many types of furnaces in a wide range of sizes. Each number has been proved to be best fitted for its purpose by many years of manufacturing experience on our part, and of selling experience on the part of our dealers; and never has there been a time when Moncrief Furnaces were so well and carefully made as now.

## Moncrief Pipe and Fittings

**W**E make the most complete line of furnace pipe, fittings, and general accessories of anybody in America. Just this year we have again made another large addition to our factory, which enables us to enlarge our already complete line.

*Send for our big pipe  
and fittings catalog*



**The Henry Furnace & Foundry Co.**

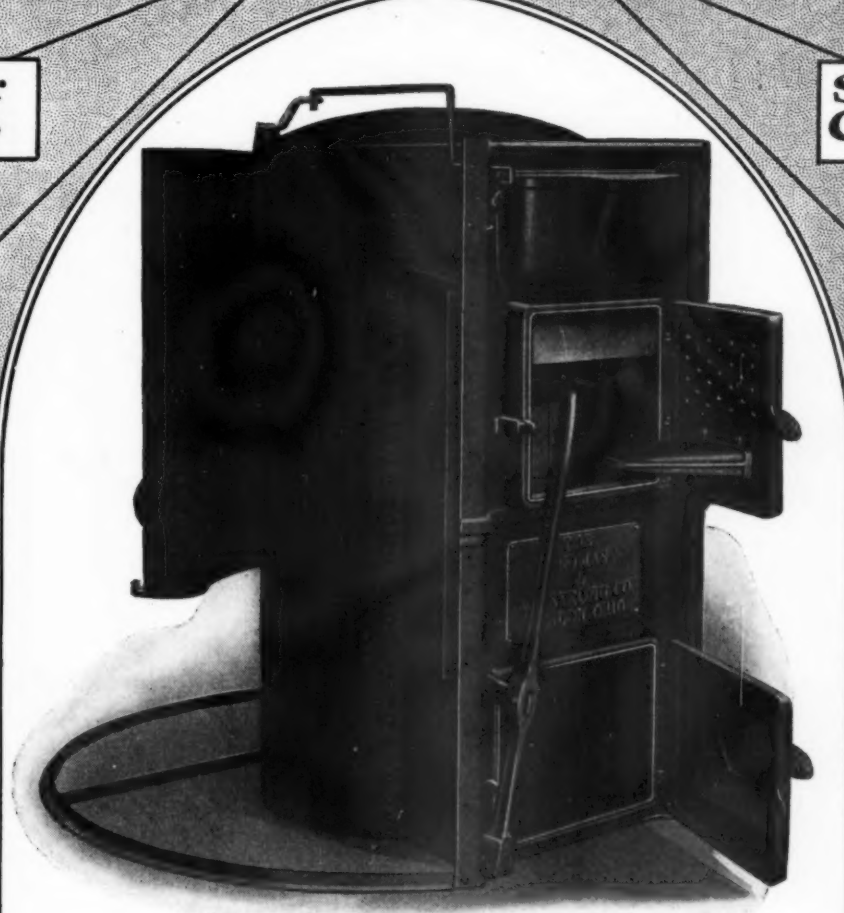
3471 E. 49th St.

Cleveland, O.

# MONCRIEF

PIPE, PIPELESS, THREE PIPE AND MAJESTIC MONCRIEF  
FOR ALL WARM AIR HEATING NEEDS

1925



**More Furnace Sales**

**Greater Profits**

**Less Service Work**

**Easier Installations**

**Satisfied Customers**

**A Better Furnace**

## Make 1925 a Really Big Furnace Year— with **ARMSTRONG** Guaranteed Steel **FURNACES**

**N**OW is the time to plan next year's business—to consult catalogs, prices and profit margins—the time to line up with a **proved, dependable, correctly priced furnace** that you **know** will sell.

A good proposition and good territory can be secured by live dealers who act **promptly!** We furnish handsome floor samples on special terms to reliable dealers. They speak for themselves and will attract many new prospects for you.

Our line is complete in pipe, pipeless, 3-way or semi-pipeless types. For burning coal, wood, oil, gas or coal and gas in combination.

The Armstrong is a quality furnace—made **absolutely dust, smoke and gas tight and fully guaranteed.**

Its display on your floor or in your window will mark you as the most progressive dealer in your community.

**1925 WILL BE A GREAT YEAR FOR LIVE DEALERS!**

*Mail Coupon TODAY!*

**The Thomas & Armstrong Co.**  
Dept. 501 London, Ohio

**THE THOMAS & ARMSTRONG CO.,**  
Dept. 501, London, Ohio.

Please send me at once the Armstrong Furnace Catalog and full details of your dealer proposition.

Name.....

Address.....





HOMER  
PIPE  
FURNACE



## GREETINGS

1925

*To our many patrons we extend the season's greetings, with best wishes for a prosperous and happy New Year, and trust that you may be as well pleased with the year just passed as we are, but looking forward to the New Year with pleasant anticipation of greater things to come.*



HOMER  
PIPELESS  
FURNACE

*"What's home  
without a Homer"*

THE co-operation of Homer Furnace Company dealers during 1924 was everything to be desired. It kept the factory running to capacity which enabled us to manufacture at the very lowest possible price, consistent with quality product. This was very gratifying to us because of its effect on the consumer.

The consumer was quick to recognize the fact that Homer Dealers had a product that merited attention and the manner in which the customer showed his preference netted Homer Dealers a steady, profitable business.

We face 1925 well fortified with a sense of good work, well done and knowing full well that Homer Dealers are going to build a bigger and better business for themselves the next twelve months.

Dealers who join the Homer organization now have a future that leaves no room for doubt. A steady business with a well established house and a product that has made a wonderful record in the warm air heating trade.

We invite you to start the New Year with us—Write us now for our 1925 program.

HOMER  
PIPE FURNACE  
CASTINGS



*"There's Harmony in Homer Heated Homes"*

# HOMER FURNACE COMPANY

Coldwater, Michigan  
U. S. A.

THE FAMOUS  
EUREKA PIPE  
FURNACE CASTINGS



# **BEGIN THE NEW YEAR WITH A NEW FURNACE**

**We Announce the Production of the  
HERO 600 SERIES**

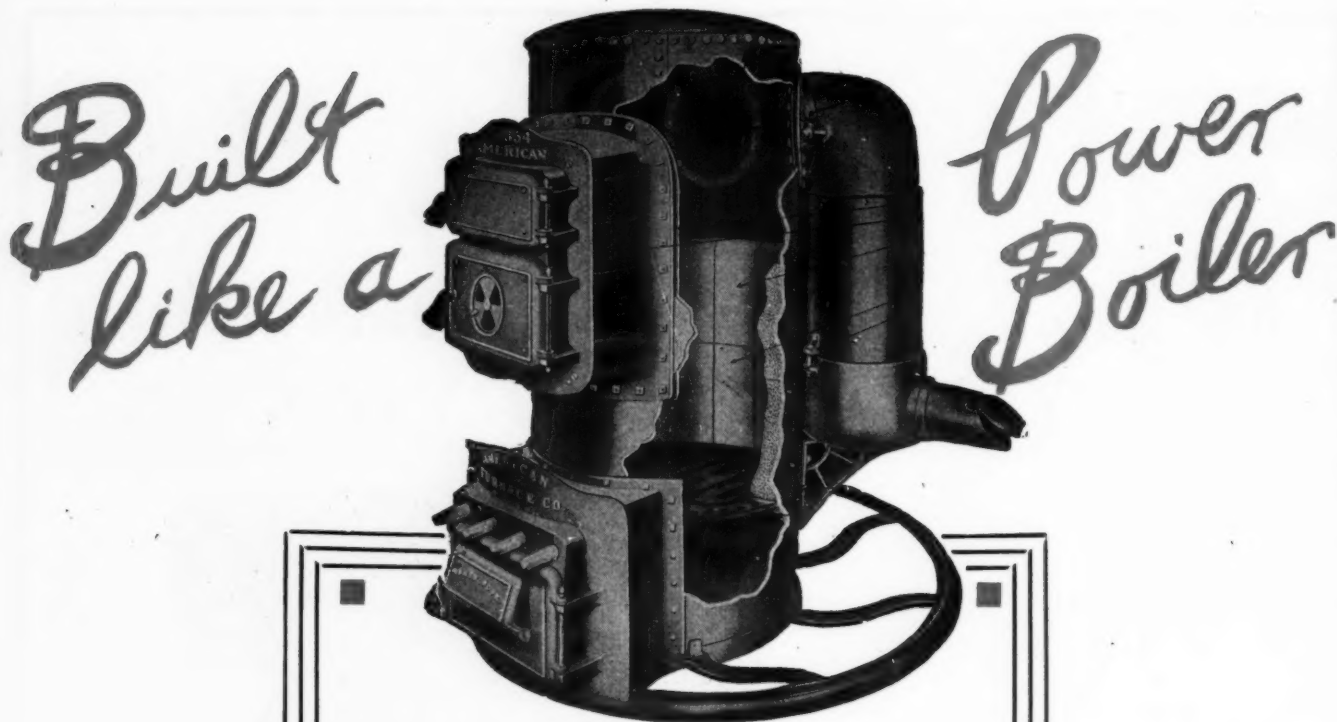
**NEW—**

- IN DESIGN**
- IN FEATURES**
- IN VALUE**
- IN QUALITY**
- IN POWER**



**I**N the Hero 600 Series there is correct weight, massive construction, large radiating surface, and fine proportion. Everything has been done to make this the *best* Hero furnace ever produced. We want to tell you about it!

**FOR FURTHER DETAILS WRITE TO  
HERO FURNACE CO.  
SYCAMORE, ILLINOIS**



### Steel + Super Construction

**T**HE American Boiler Plate Furnace is built of steel—for positive air tight, clean heating results.

It is built of steel—heavy, high quality steel for long life, hard service and permanent satisfaction.

It is built, designed and super-constructed in every detail for high quality heating service.

***Start selling Steel Furnaces Now  
and be sure to study the quality  
carefully***

The American Boiler Plate Furnace has reliable quality and has been the means of many a dealer doubling his furnace business in one season.

We want to send you our special circulars and catalog which describes this quality furnace in detail.

Write today for details of American Boiler Plate Furnace Construction.

**AMERICAN FURNACE CO.**

2719 to 2731 Morgan Street ST. LOUIS, MO.

### **THERMO CAST IRON FURNACE**

made in a complete line. Write for full details now. The Thermo is a quality furnace possessing some very interesting and effective exclusive features.

### **AMERICAN AGENCY DETAILS**

will be mailed on request. The proposition we offer to live dealers in exclusive territories will interest you. If you want better business next year let's talk it over.

# AMERICAN

**BOILER PLATE**  
*Warm Air Furnace*



# A Good Reputation

The men who install heating apparatus are very careful to guard the interests of their customers. They are in business, not just for a day, a week or a month, but for a lifetime, and they know the value of fair dealing as a business asset.

The Richardson "Perfect" Warm Air Heater has a good reputation. It is *correctly* rated. When you install a Richardson "Perfect" Warm Air Heater in a home you can be sure that it will maintain an even temperature of 70° with the *minimum* amount of fuel even on the coldest days.

The Richardson "Perfect" Warm Air Heater will live up to *your* reputation as a heating expert.

We have prepared a series of very attractive books, giving complete information about Richardson "Perfect" Warm Air Heaters. Write for a supply and distribute them among your prospects. We can suggest some good ways of getting best results with them.



## RICHARDSON & BOYNTON CO.

NEW YORK, 260 Fifth Ave.  
DETROIT, 4472 Cass Ave.  
BUFFALO, Jackson Bldg., 220  
Delaware Ave.  
CHICAGO, 3639 to 3645 S.  
Ashland Ave.

Manufacturers of  
**Richardson "Perfect"**  
Heating and Cooking Apparatus  
Since 1837

BOSTON, 60 High St.  
PHILADELPHIA, 1308 Arch St.  
PROVIDENCE, 58 Exchange St.  
ROCHESTER, Rockwood St.  
NEWARK, 593 S. 21st St.  
(Irvington) Dover, N. J.



# Richardson "Perfect" Warm Air Heater

# SIMPLEX

## Pipe and Pipeless

**THE RADIATOR IS CAST IN ONE SOLID PIECE**—made by a newly invented method which insures clean castings of uniform thickness with no chaplet heads or bumps appearing on radiator.

### FEED SECTION

Double feed door equipped with gas-tight flanges. Large and roomy.



### THE FIRE POT

Extra large with extra good height and is equipped with a brand new shaking device.

There are many other unusually good and important features on the SIMPLEX including The Patented SIMPLEX Grate, One-Piece Base with base ring attached, Large Water Pan and Large Cleanout Door.

## One of the best standard type furnaces on the market —

**L**ET us tell you all about it and our other HIGH GRADE FURNACES. We handle the best grade furnaces of various lines and types that we can find so that you can GUARANTEE your customers real heating satisfaction.

Before you sign up for 1925 talk over your furnace business with us.

*You'll Want to Use Manny Speedy and Reliable Service in Getting High Quality—*

## FURNACES — REGISTERS

### PIPE AND FITTINGS

### AND ALL WARM AIR FURNACE SUPPLIES

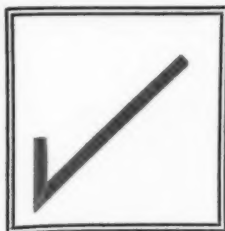
*We carry ALL LEADING MAKES and  
OUR PRICES ARE RIGHT*

Write today for complete illustrated catalogs, circulars  
and our attractive prices.

## THE MANNY HEATING SUPPLY CO.

228 West Lake Street

Chicago, Illinois



# Check This Advertisement!

You'll want to look into  
This "Quick Heater" Line

A  
FURNACE  
for  
EVERY  
Job

at a  
PRICE  
to Meet ALL  
COMPETITION



No. 800  
Series  
"Quick  
Heater"  
Furnace



## No. 800 "Quick Heater" Selling Features

Sectional Base ring—deep, extra large, water tight ash pit—either cone or bar grates—waist high shaking device with cone grates—extra deep, sectional firepot—oversize doors, fitted air tight—full, two-piece front—large front water pan—large feed section—scientifically constructed radiator—gas tight joints.



Showing "Quick Heater" Cone Grate in Position

THE above statement correctly describes our 1925 line of furnaces. In our estimation, you will be able to put over the biggest volume of business in your history if you concentrate upon the

## "Quick Heater" Line

It includes several series, each one of which has the highest quality of any furnace in its class, and consists of sizes to meet the needs of any job. Yet you will find that their prices are low—with them you can meet any kind of competition and make a splendid profit for yourself.

Lack of space permits us to illustrate only one of these furnaces, the 800 series shown above. Note the selling features on the left. Large, complete stocks of all furnaces ready for immediate shipment. You can depend upon "Quick Service."

The "Quick Heater" line also includes a full line of all furnace accessories—"Quick Heater" registers, Lamneck pipe and fittings, Hart & Cooley registers.

You will find our Dealer Proposition, our prices and the quality of the "Quick Heater" line even more interesting than you suppose. It will pay you to write at once for full details.

## Quick Furnace & Supply Co.

Des Moines, Iowa



# **PLENTY**

**OF MOISTURE**  
**WITH THE**  
**BRIDGE-BEACH**  
**PATENTED**  
**HUMIDIFIER**

An exclusive feature of obvious merit. By far the biggest sales opportunity for increased business in 1925. Puts in practice the widely published advice of Health Authorities—effectively—automatically.



## *A Worthy Companion for the Popular* **BRIDGE-BEACH FURNACES**

These complete healthful heating systems are the greatest pride of dealers who have had wide experience. You too will like our products, prices, cooperation.

**WRITE FOR CATALOG 87-F**



**BRIDGE & BEACH MFG. CO.**  
**ST. LOUIS, MO.**

**PORTLAND, ORE.**

**SAN FRANCISCO**

*Annual Contributors to public welfare and  
dealer prosperity*

**SINCE 1837**

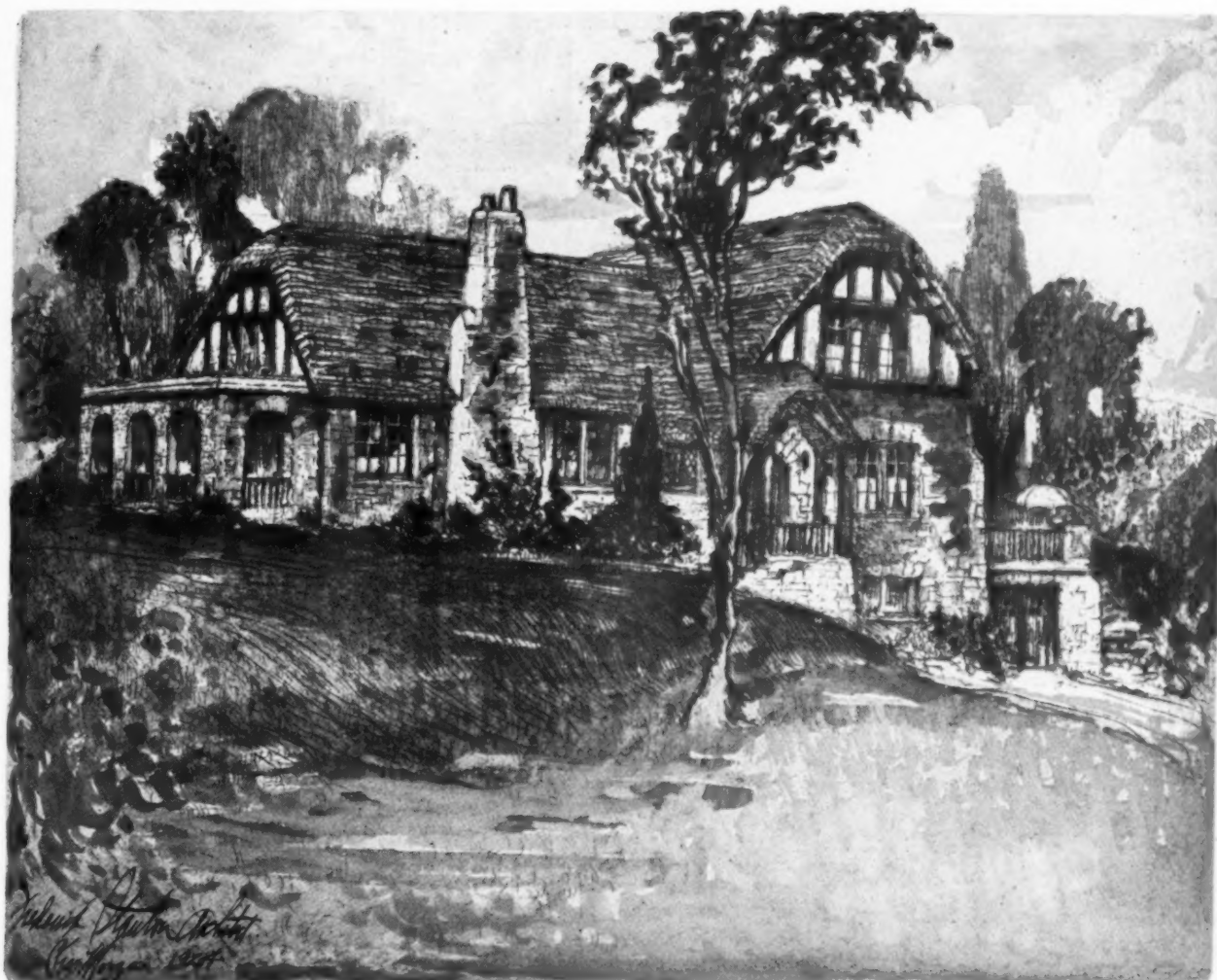






# WAGNER SCIENTIFIC

WARM AIR  
HEATER



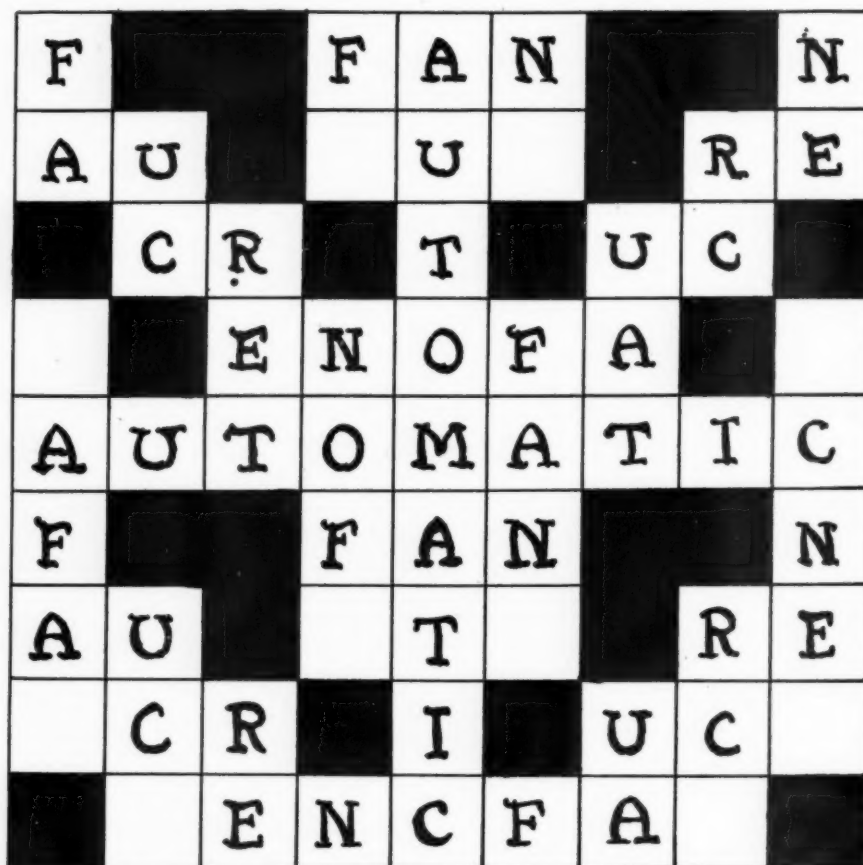
**T**HE home that is heated with a WAGNER SCIENTIFIC WARM AIR HEATER is properly heated nearest to Nature's way, circulating pure, clean, moist, healthful air thru the home. It is designed and constructed for the highest degree of efficiency. Consult us before you purchase your 1925 requirements.

*Manufactured by*

***Dowagiac Manufacturing Co.***

***Dowagiac, Michigan***

## HEAT WITH FORCED AIR



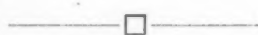
Not a Puzzle to Those Who KNOW

**SAVES** { *FUEL*      Makes Satisfied Customers  
           { *TIME*        Increased Profits  
           { *WORRY*      No Additional Overhead

Why wait for the job to get sour?

Now is the time to put the AUTOMATIC FURNACE FAN on every job.

*You Have the Furnace—  
We Have the Fan—*



**LET'S GO**

**THE DOMESTIC APPLIANCE CO.**

6539 Euclid Ave.

Cleveland, Ohio

# Another Leap Forward!

## THE DRAFT-A-STAT

### Automatic Control of Chimney Drafts



A new era in house heating. No more chimney draft troubles to contend with. No more room temperatures changing as the drafts vary on the fuel bed. Cuts the furnace stoking intervals in half. Saves about 85% of the heat units now being wasted up the chimney. The DRAFT-A-STAT constantly maintains an equal steady draft on the fuel bed despite ever changing chimney drafts. It functions automatically by draft pressure only. Nothing to clog or stick. Installed in five minutes in place of ordinary check damper. Constructed of cast iron (enameled) brass and aluminum. No maintenance expense or further attention required after installing. Lasts for years. For 8 inch smoke pipe. Retail at \$3.00. Individually packed.

*Write today for our illustrated literature*

**The  
Automatic Draft  
Regulator Co.**

11618-24 Madison Ave.  
CLEVELAND, OHIO





**Every Dealer Knows**  
that sooner or later he must sell high quality



## THE ROBINSON Welded Steel Furnace

is high grade throughout and presents a construction that accomplishes the most successful warm air heating results.

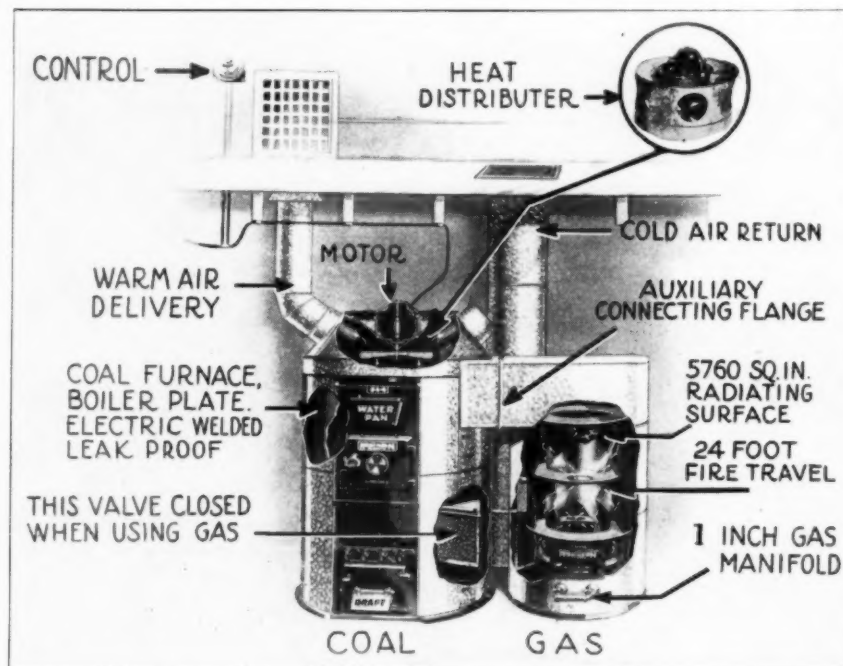
Both the body and the large extra radiator are of extra heavy boiler plate electrically welded throughout.

The Robinson provides absolutely clean, moist air—notice the large water pan up high on the furnace where it gives best results.

Grate, fire brick lining, feed door, ash pit, all doors, dampers and all its other features are designed and constructed in accordance with the highest heating efficiency regulations.

It's the furnace you'll want to start selling with the new year.

*You can sell this high grade Welded Steel Furnace in your territory—its attractive price will interest you*



## WRITE TODAY FOR FULL DETAILS ON THE ROBINSON WELDED STEEL FURNACE AND ITS AGENCY

The lower illustration shows a Robinson Welded Steel Furnace installation with fan for forcing the warm air equally to all the rooms. It also shows the Robinson "Quick Action" Gas Burning Auxiliary Furnace.

The "Quick Action" can also be used as an individual furnace in many cases because of its great and efficient heating ability.

A Robinson Welded Steel Furnace installation such as shown here makes the most up-to-date and efficient heating system to be had.

*We will be glad to tell you all about Robinson Warm Air Heating Engineering. Write today for catalogs, circulars and further information.*

# THE A. H. ROBINSON COMPANY

Cleveland, Ohio





Proper cementing is one of the most essential things in giving furnace satisfaction.

Manufacturers and Installers should use Pecora—the cement that, after the first fire, almost becomes part of the metal itself.

Will give  
you  
absolute  
satisfaction

**FACTS—**

1. *Iron will melt where this cement will stand.*
2. *Makes a permanent, tight joint.*
3. *Pecora is odorless.*
4. *It is easy to use and economical.*
5. *Does not shrink in joints.*

Ask the  
man  
who uses  
it

Tell us your needs—Write for details

**Pecora Paint Company**

4th and Erie Street  
Philadelphia, Pa.

Established 1862  
by Smith & Bowen

Incorporated  
1911

## Majestic Automatic Oil Heaters for Homes

### Especially Adapted for Warm Air Furnaces



**THE CASTINGS** are made of chrome nickel to resist the intense flame that surrounds them. They will not burn out, crack, or warp with years of use. This is a point of great superiority over all other oil heaters. The Majestic Manifolds will never have to be replaced.

**ODOR**—that's the problem you have been wanting solved so you could conscientiously go after the Oil Burning business in connection with warm air furnaces.

The Majestic solves this problem and is therefore the type of oil burner especially desirable and practical for all types of warm air furnaces.

Your customers want to burn oil, and the Majestic means—Efficient Heating—Cleanliness—No Noise—No Odor—Economy. It is not an experiment.

The successful elimination of a Blower is made possible by the Majestic Automatic Flue Regulator, which regulates the variable draft of the chimney and delivers to the burner a constant unvarying draft regardless of wind or weather.

### Write For Full Agency Details Today

The Majestic is a high grade Automatic Oil Heater and we want to establish agencies with high grade Warm Air Heating Contractors. Do not pass up the Oil Heater profits—you can fully guarantee the Majestic.

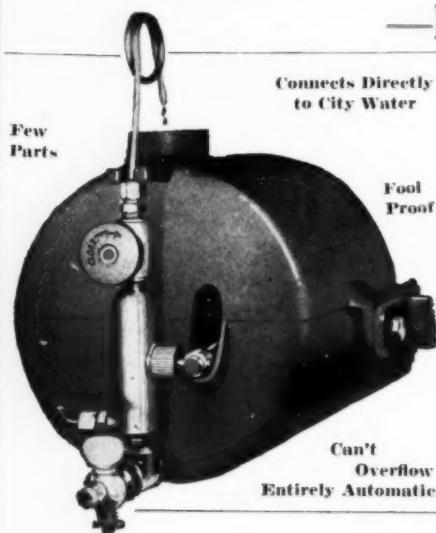
Wire now for complete mechanical description and exclusive agency particulars.

Write for Literature

## Majestic Engineering Co., Lafayette, Indiana

**AT LAST!**  
an Air Moistener you can  
install in less than an hour!"

—E. L. Jaynes

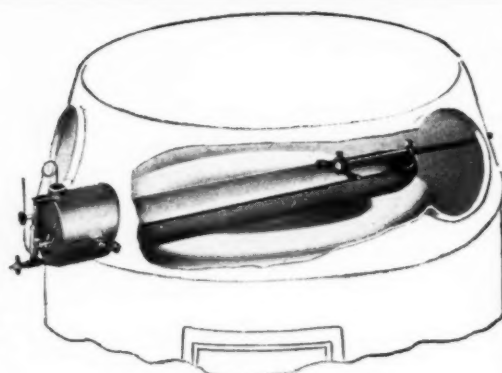


Connects Directly  
to City Water

Few  
Parts

Fool  
Proof

Can't  
Overflow  
Entirely Automatic



One Hole in Bonnet Is Ample.  
Moistener Slides in Over Radiator.

**THE** value of moist air in the home needs no introduction to your present and future customers. They like it. They want it. They need it. Their newspapers, magazines, and even their own family physicians recommend it.

**HERETOFORE** humidifier installation, usually meant the removal of the furnace bonnet, and leader pipes. This resulted in a large outlay of time on the part of the installer. As a consequence, humidifiers were hard to sell because of their installed price.

**NATIONAL AIR MOISTENERS** can be installed in any furnace, in 1 hour, without removing the bonnet. Installed price \$25.00. Good margin for the installer.

Our New Descriptive Circular Is Yours for the Asking

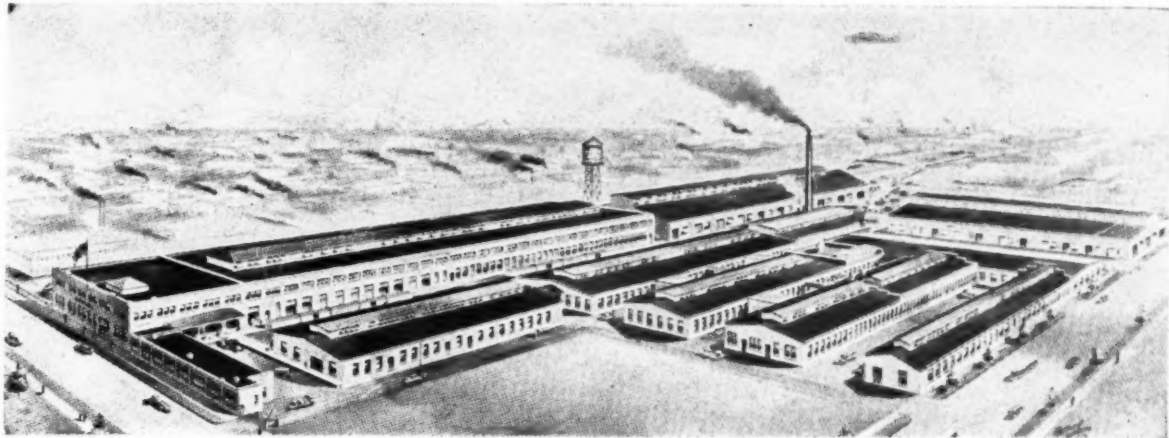
## THE NATIONAL AIR MOISTENER COMPANY

E. L. Jaynes, President

Local Address, 621-623 Washington Ave., South

Minneapolis, Minn.





(A Plant Especially Equipped to Handle the Needs of the Store and Furnace Builders)

# BOLTS - NUTS Catalog on Request RODS - RIVETS THE KIRK-LATTY MFG. CO. 1971 West 85th Street Cleveland, Ohio



"Yes Sir! I'll hire the man who can design, proportion and lay-out work like this pipe system and these fittings. In the future we shall hire all our men by this test," Says a Sheet Metal Employer.

**FAN HEATING VENTILATING** is the pinnacle of all the other branches in the entire Sheet Metal Industry. It offers more distinct chances for Advancement than any of the other fields. It is a public necessity; everybody must have heat. Think of it!

## Heating Ventilating Engineering Prepares You For

1. For Employers it enlarges their business opportunities 100%.
2. For Employees, it raises to Foremanship or Superintendent of a Shop.
3. Or as Designing Engineer with some large Heating Contractor.
4. As an intelligent Salesman of Manufactured Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Mfg. Co.
6. Later as Consulting Engineer to Architects and Building Contractors, etc.

This Course has lately been completely revised and enlarged, and is prepared so tradesmen can understand what is taught. It will not shoot over your head as so many studies do on the subject.

**We Teach You in Your Own Home, Personal, Clear, Direct**

Full Information Free—Select Your Course.

- ☐ FAN HEATING AND VENTILATING ENGINEERING  
☐ SHEET METAL DESIGN AND PATTERN DRAFTING  
☐ BUSINESS MANAGEMENT

ST. LOUIS TECHNICAL INSTITUTE

O. W. Kothe, Prin.

4543 Clayton Avenue., ST. LOUIS, MO.

Which of These  
Opportunities  
Are You Work-  
ing for

# HONEYWELL

## Temperature Regulators



### The Answer to the Domestic Oil Burner Question

More than 30 of the leading oil-burner makers have adopted Honeywell controls. It is generally conceded that the successful use of oil for domestic heating depends largely upon the employment of efficient automatic regulation. The advance in popularity of this type of heating is the most pronounced development of the hour. Honeywell can therefore be credited with making an invaluable contribution to this new phase of the heating industry. Household-ers may be assured that oil-burners with Honeywell control will give them the largest possible measure of efficiency, comfort, economy and safety. The following manufacturers standardize on Honeywell:

Nokol Socony Wayne Ray Gill

## Endorsed *and* Adopted By America's Heating Industry

When the leaders of every branch of the heating industry publicly endorse and widely adopt Honeywell Regulators, there can be no doubt about the kind of temperature control to install in your home.

The following leaders have standardized on Honeywell:

American Radiator Co., United States Radiator Corporation, International Heater Co., Fox Furnace Co., Majestic Furnace Co., Detroit Edison Co., Standard Sanitary Mfg. Co., American Nokol Co., Socony Burner Corp., W. S. Ray Mfg. Co., Gill Mfg. Co., Wayne Tank & Pump Co. For more than 15 years Honeywell has been developing and perfecting instruments for the automatic control of room tem-

peratures, whether the heating plant be a furnace or a boiler, whether it burn coal, gas or oil. It is obvious from the overwhelming weight of unbiased evidence that this intensive study and specialized effort have borne fruit.

There is but one explanation for such confidence in a name and the product that bears it. It must have been earned by merit alone.

Certainly such a dominating position offers an infallible guide to home builders and home owners who wish to enjoy the comfort, convenience and economy that only automatically controlled room temperatures can give them.

The Honeywell Heating Specialties Company, Wabash, Indiana

# HONEYWELL

## Temperature Regulators

The Honeywell 15-20 day Chronom Clock Thermostat, used in conjunction with the Honeywell new-type electric motor, is a development of fifteen years of experience and specialized effort in this field. It is distinguished for its numerous exclusive features of automatic control and its absolute reliability.









## Convince Your Prospects

Do your prospects tell you that they want humidified heat in their homes? Do they raise the question whether a warm air furnace gives off such heat? You can easily prove to them that it does.

Tell them that the furnace which you sell has a two gallon water-pan. Show them that the air traveling between the furnace and the casing, comes in contact with this large pan. Prove to them they will get that balmy air which doctors so heartily recommend.

You can convince your prospects by showing them the large water-pan on the



Then point out to them the great heating surface on the Novelty Modern Furnace. Tell them that this furnace has twice the heating surface found in other furnaces. Prove your point by passing a string around the crab section, going in and out each crab. Compare the length of this string with that required to measure the dome section of some other furnace.

A furnace that has a large heating surface and gives a sanitary heat is always in demand. Write today for the booklet illustrating Novelty Furnaces. Address Dept. T-12 at the nearest office.

## The Easiest Untruth to Fight

The false statement made most loudly and most often against Warm Air Furnaces is that they give a dry, unsanitary heat. But that untruth is the easiest one to fight because the *real truth* is all in your favor.

In fact, you can make your prospect prove to himself that Warm Air is the only system which can and does give him the balmy warmth which physicians recommend.

Get the sale by making your prospect **think!** Make him realize that he can't get heat with a proper moisture content when he uses a system which purposely **seals** the moisture so it can't get out in the air. Then tell him that with such a system he must **open the windows** to get the proper kind of atmosphere—and buy coal to heat all outdoors!

But the faithful old warm air furnace supplies the fresh air with the heat—and it is the **only** system fitted with a water pan to **compel** properly moistened air. Make him admit that he never saw any other system which mixed heated air with moisture.

Then make him admit that **his own words** have proven that Warm Air heat is the moist and healthy heat he wants.

Remember, the "dry, unsanitary heat" argument is made oftener than others and it is the easiest to overcome. So fight until your prospect realizes the truth of the matter, and you will make more sales.

Next month we will discuss another case where the truth is on your side to explode a false argument.

E. F. Gloré.

This is the fourth of a series of articles by Mr. Gloré on Warm Air Heating.

**Warm Air heating system is Best For the average Home**  
*Convince the public by telling them constantly*

1847

Philadelphia

American & Dauphin Sts.

ABRAM COX STOVE COMPANY

New York

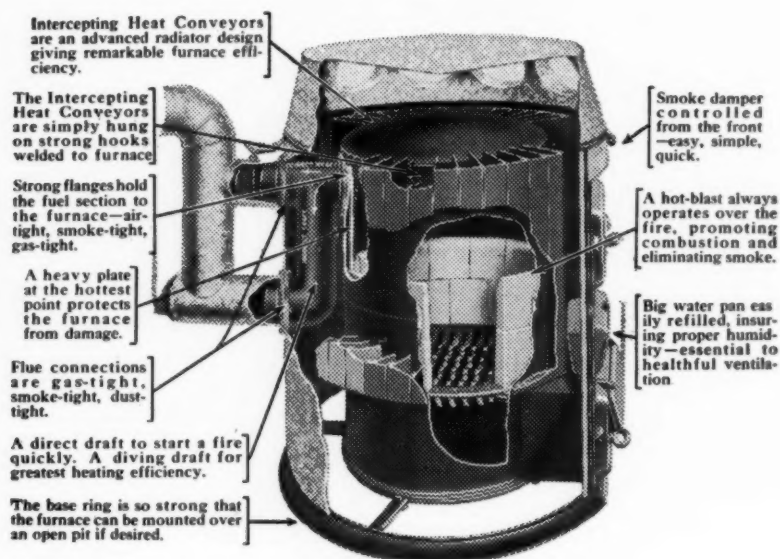
113 E. 34th St.

1924

Chicago

736 West Monroe St.

For 77 years, manufacturers of NOVELTY Pipe and Pipeless Furnaces; Round and Sectional Boilers; Coal Tank Heaters and Laundry Stoves; Coal Ranges; Combination Coal and Gas Ranges; FORTUNE Gas Ranges and Gas Water Heaters.



**The NEW Victor Boiler-Plate Furnace**  
**With Intercepting Heat Conveyors**

(Patented January 3, 1923)

## Double Your Furnace Sales!

**D**EALERS for the New Victor Boiler Plate Furnace get clear out of the usual competitive fight over furnace sales.

Intercepting heat conveyors on the New Victor furnace are a greatly improved radiator construction. They increase heating efficiency 20 per cent—a fact proved by scientific laboratory tests, and in actual service.

So the New Victor furnace dealer offers his prospects a remarkable furnace value. And the New Victor costs no more than any other good furnace. It certainly does make an entirely different selling proposition for the furnace dealer to offer a value of this sort.

We invite furnace dealers everywhere to write us for detailed information about this progressive improvement in furnace construction. With a value like this any good furnace dealer can double his sales, as a great many New Victor dealers have done in the last two years.

**HALL-NEAL FURNACE COMPANY**  
**1323 N. Capitol Avenue** **INDIANAPOLIS**

*Builders of Victor Furnaces for a Quarter Century*



# PREMIER DIRECT *Advertising* *makes furnace business* **Pour!**



**H**OT and Direct PREMIER advertising makes business "pour" from your territory.

PREMIER business does not come hard—it pours.

A number of letters (each connecting the dealer with the PREMIER) go to each of your prospective furnace buyers. These letters go from five of our executives in swift flight to the buyer. He reads them. They are personal—and right to the point. Each is pen signed. In these letters we tell the home owner such PREMIER facts as—

The PREMIER supplies healthy, humid heat in spite of low temperature or howling winds.

The PREMIER burns any kind of coal and burns it economically.

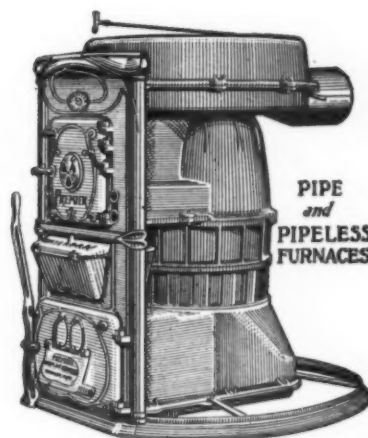
The PREMIER can be controlled easily for each part is carefully ground and fitted at the factory. It is like a beautiful animal with a pedigree and the complete pedigree of every furnace is on record at the factory.

The PREMIER does away with gas and smoke belching into your face while firing, for it has a Direct Draft Damper.

The PREMIER is designed to burn cheap coal without sooting up the furnace. The lower fire pot is equipped with air blasts and the combustion chamber is high and roomy.

Every department of the PREMIER business is managed by practical furnace men. We recognize, that the most elegant furnace job in the world may not "prove up" unless properly installed.

**PREMIER WARM AIR HEATER CO.**  
DOWAGIAC, MICHIGAN



PIPE  
and  
PIPELESS  
FURNACES

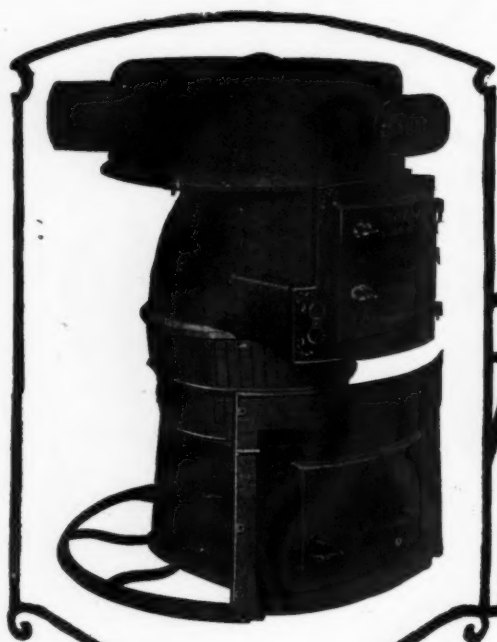
Hot, direct PREMIER advertising promotes the good PREMIER WARM AIR HEATER in behalf of our dealers. Is your territory full of "tough" but moneyed prospects? Let us help you melt them down as a hot blast melts down iron in the cupola. Use coupon—or write your situation in detail.



Tell us WHY PREMIER furnace business does not come hard. You say "it pours". Without obligation, tell us about the PREMIER and your dealer cooperation.

Address.....

Name.....



# 1925

## Niagara Furnaces Quality -

**Quick Installation  
Rapid Turnover  
Cooperation in Selling**

**T**HESE four features are all combined in our 1925 sales plan. They mean prestige with profit for you.

*Wire us for Details*

**THE FOREST CITY FOUNDRY  
AND MANUFACTURING CO.**

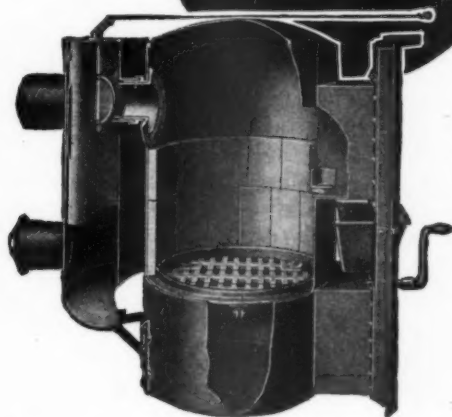
**CLEVELAND, OHIO**

*Also Manufacturers of Monarch and Peerless Furnaces*

**WATERBURY'S** welded seamless steel alloy body. Note extra large combustion dome, heavy, straight brick-lined firepot and long downdraft fire-travel.

**CLEAN  
HEAT**

**BRICK  
LINED**



**OIL or  
COAL**

## Why the Waterbury Is Your Best Bet

**T**HERE are plenty of sectional furnaces on the market. If you sell one to Jones, Jones may become very enthused over it the first winter, and his neighbor Smith will want one like it.

But Smith, like all furnace buyers, wants to shop around a bit. The competing dealer shows him a furnace which, in all essential details, is the same as Jones'. To get the sale, the dealer lets him have it at a lower price than yours.

When you sell a sectional cast iron furnace, you build business not for yourself alone, but for the whole furnace industry of your town. But suppose you sell the—

## **WATERBURY SEAMLESS FURNACE PIPE OR PIPELESS**

*For best results,  
follow the  
National Code and  
use Waterbury  
Seamless Fur-  
naces!*

Smith comes to see you and you tell him about the permanently clean heat **guaranteed** by the Waterbury and why no other furnace he could buy could be guaranteed to give such results. You warn him that a Seamless Furnace naturally costs more than an ordinary sectional furnace, which must be re-cemented every so often and that the Waterbury will ultimately cost him less. And Smith, like everyone, wants clean heat and economy. He buys the Waterbury!

When you sell the Waterbury you build good will for yourself and yourself alone. Your business builds with corresponding speed and sureness.

**No Rivets!  
No Cement!**

Learn the excellence of the Waterbury's design and construction in every detail. Write for the Waterbury catalog and agency proposition now!

**The Waterman-Waterbury Co.**

1122 Jackson St. N. E.

Minneapolis, Minn.



# The Bible of the Warm Air Industry

## A plain talk to Furnace Men

By E. B. Langenberg

Vice-President Langenberg Mfg. Co.

### MAKERS OF FRONT RANK FURNACES

The Standard Code regulating the installation of Warm Air Furnaces is the Bible of the Warm Air Industry. Everything else being equal, the man who installs a warm air heating system according to the Standard Code, gives satisfactory service and makes friends for warm air heating.

More than that, he makes friends for himself. He has done a good job and that is the best way to build up business.

The Standard Code is your guide for good work—it is your protection against kicks and comebacks. By following the Code you obtain the experience of the best heating and ventilating engineers. It is almost the same

as calling in these men to help you install your job. You are getting the services of the highest paid men in the business—and it isn't costing you a cent.

No furnace man can afford *not* to use the Standard Code. With it, you can figure on the biggest jobs, and know that when you get the order, your customer will be satisfied. Have you a copy of the Standard Code? If you haven't write to us, and we'll see that you are supplied. We want every furnace man—whether he is a Front Rank dealer, or not—to have the benefit of this service. We want this because we realize that the future of the warm air heating industry depends upon how well we do our work *now*.

## FRONT RANK

TRADE NAME REGISTERED

### STEEL FURNACES

There is one other essential for giving satisfaction and building up a profitable heating business. That is selling a good furnace. We have been making Front Ranks for 37 years and are selling more now than ever before. That is the best recommendation we know.

*Warm Air heating system is Best For the average Home*  
Convince the public by telling them constantly

*E. B. Langenberg* VICE-PRES.

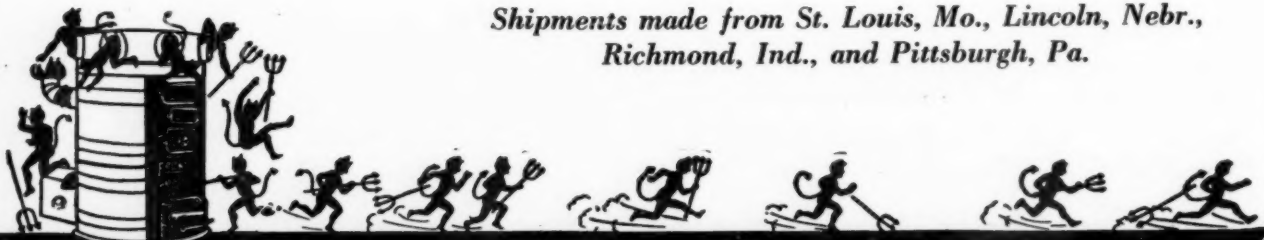
### LANGENBERG MANUFACTURING CO.

Successors to

Haynes-Langenberg Mfg. Co.

4545 North Euclid Ave., St. Louis, Mo.

Shipments made from St. Louis, Mo., Lincoln, Nebr.,  
Richmond, Ind., and Pittsburgh, Pa.



**"Good Bye! We're Going Home - Front Rank is too Hot!"**

# A MASSIVE FURNACE

TRULY OVERWEIGHT  
AND EXTRA DURABLE

## AMERICAN SELF-CLEANING FURNACE



**With This Quality Furnace You Can Pull  
Sales and Satisfaction**

**E**VEN a casual examination of the furnace from the above illustration shows you that it is designed and built to give both scientific, efficient heating and many years of service.

**These are a few of the features**

**OPEN DOME—SELF-CLEANING**—The radiator is self-cleaning. Soot and Dust cannot collect.  
**FUEL SAVING**—All heating surfaces are in direct contact with the flames.  
**DUPLEX REVOLVING AND DUMPING BALL BEARING GRATES, SLOTTED FIREPOT.**  
**CORED DIVING FLUE.**  
**LARGE WATER PAN**—In front opposite the hottest part of furnace—provides abundant humidity.  
**LARGE DOUBLE FEED DOORS.**  
**EXTRA LARGE CASING.**

**Before you choose your line for the coming year be sure to investigate this furnace and our profit making agency.**

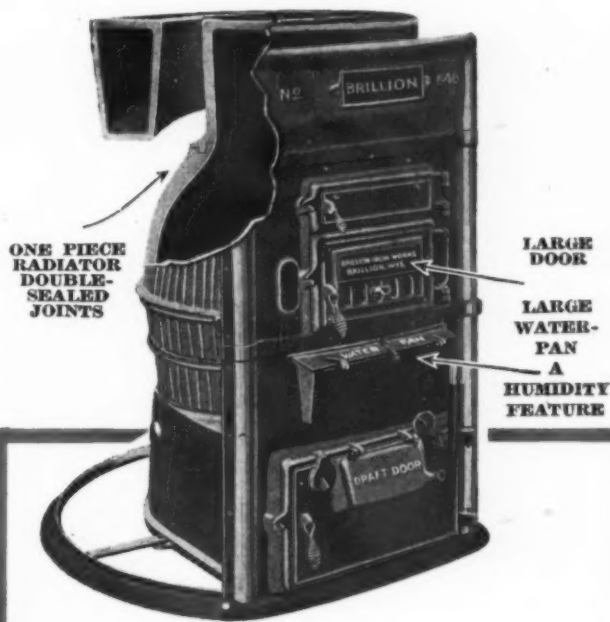
**W**E want a few more live, progressive dealers. You can guarantee satisfaction with the American Self-Cleaning Furnace and make good profits. Write today for full details and descriptive catalog.

**Shipments Are Unusually Prompt**

**AMERICAN FOUNDRY AND  
FURNACE COMPANY  
BLOOMINGTON, ILLINOIS**

# Henry Ford Bought 100 BRILLION FURNACES

**T**HE Ford Organization buys only high quality products and at reasonable prices.



**Look it over and see why  
dealers are grabbing the agency**

**I**T'S a real furnace built on a strictly quality basis, designed for correct heating and extra durability.

**ONE-PIECE, EVEN THICKNESS  
HEAVY, ALL CAST RADIATOR**

**T**HE illustration above shows why the Brillion is such a big favorite. Notice the heavy all cast one-piece radiator, extra weight of the combustion chamber and extra deep cup joints.

**A furnace of real features**

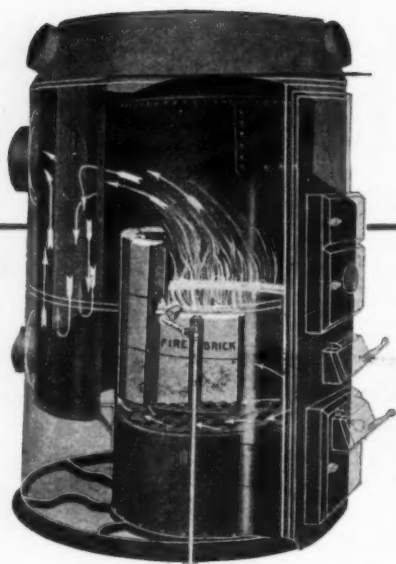
**I**MMENSE radiating surface. Large free air travel. Air tight and easy to set because all parts fit perfectly. Economical fuel service and many other features make the Brillion a big success for you.

*Write for complete details  
and prices today.*

**BRILLION IRON WORKS**

**210-230 Park Ave.**

**BRILLION, WIS.**



## PEERLESS HOT BLAST

### Armco Iron Furnace

*It burns the gases, smoke and soot*

**PEERLESS**—A name, fit only for a heater of unqualified success—to both dealer and consumer.

**PEERLESS**—dealers are not compelled to spend a lot of time trying to explain some "novelty" about their heater. Every item in Peerless construction shows its superiority. A line of heaters large enough for the enterprising dealer who wants to make good profits, large sales and satisfied customers. A Peerless dealer always comes back to the Peerless line.

**MERCHANDISING POLICY**—Your profits should at this time interest you. Now is a good time to investigate the Peerless and find out how to be a real merchant in the furnace business.

*Write for our representative to call and explain our merchandising policy.*

## THE PEERLESS FOUNDRY COMPANY

*Manufacturers of Warm Air Heaters, Furnace Fans and Furnace Fittings*  
INDIANAPOLIS, INDIANA

## Sell a Good ALL CAST Furnace and a Good ALL STEEL Furnace



NESBIT cast-iron FURNACE

*and give  
your customers  
High Grade  
HEATING  
SATISFACTION*

*← (Here they are) →*



WEIR all steel FURNACE

**N**ESBIT and Weir Furnaces are top notch furnaces and they are big business getters and business boosters.

You should sell both and be prepared to meet all demands and all competition.

Drop us a line TODAY and have us tell you how we can serve your needs better for the coming year.

We have a real workable plan that made \$500.00 extra profit for many of our dealers this year—let us tell you about it.

*We are Service Headquarters for Western Furnace Dealers*

**STANDARD FURNACE & SUPPLY COMPANY**  
OMAHA, NEB.

*Everything in Furnace Supplies* SIOUX CITY, IOWA





## What Counts Most?

**P**ROFITS? Customer Satisfaction? The Manufacturers Cooperation with you? Known Reliability?

We think they ALL count to an equal degree.

For over thirty-five years Scheible dealers have successfully sold Scheible heaters on this basis.

Scheible heaters contain good old-fashioned high quality and soundness of construction PLUS all the important features that present scientific engineering has developed.

You do not speculate when you sign up with Scheible heaters. You know that you will make good profits. You know that your customers will receive the best satisfaction. You know that cooperation will be steady and helpful and that you can rely on our service and the high quality of your heaters.

We want to outline our attractive 1925 exclusive agency plans to you now.

*Write today for full details and our large illustrated catalog.*

**SCHEIBLE-MONCRIEF HEATER CO.**

2545 East 79th Street  
CLEVELAND, OHIO

**SCHEIBLE**  
Warm Air Heaters



## Much Greater Direct Radiating Surface

The special radiator shown above provides 100 to 300 per cent more radiating surface. This is just one of the many quality exclusive features found on the

### New Floral City Heater

We want to tell you all about this fast selling furnace and talk over with you the Floral City agency plans. We have a quality line and a sales plan that will open up a way to bigger business for you next year.

## FLORAL CITY HEATER CO.

MONROE, MICHIGAN

DETROIT BRANCH: 458 Penobscot Bldg.

*High Grade Furnaces for Over Forty Years*

*Write  
for  
Catalog  
today*

*The New  
Floral City  
Furnace*



**"It's true as Gospel ~**

**The Handy Pipe  
People are a mighty  
fine bunch to tie to."**

**H**ERE we are at the beginning of a New Year—an occasion for the taking of stock of the past year's business and of planning for the year ahead.

All of us are resolved that 1925 shall run ahead of 1924—and one of the best ways of assuring this is to

**USE HANDY PIPE AND FITTINGS ON EVERY  
JOB IN 1925.**

F. Meyer & Bro. Co. offer such a complete line of "Everything needed in the installation of warm air furnaces" and their service is so superior that the best thing to do is to

**RESOLVE TO PROSPER IN 1925  
WITH THE HELP OF**

**F. MEYER & BRO. CO.**  
PEORIA ILLINOIS



# Year In and Year Out "Handy" Pipe Is Consistently Good

**Y**OU can always depend on it—the material is never cheapened and the workmanship is never shoddy.

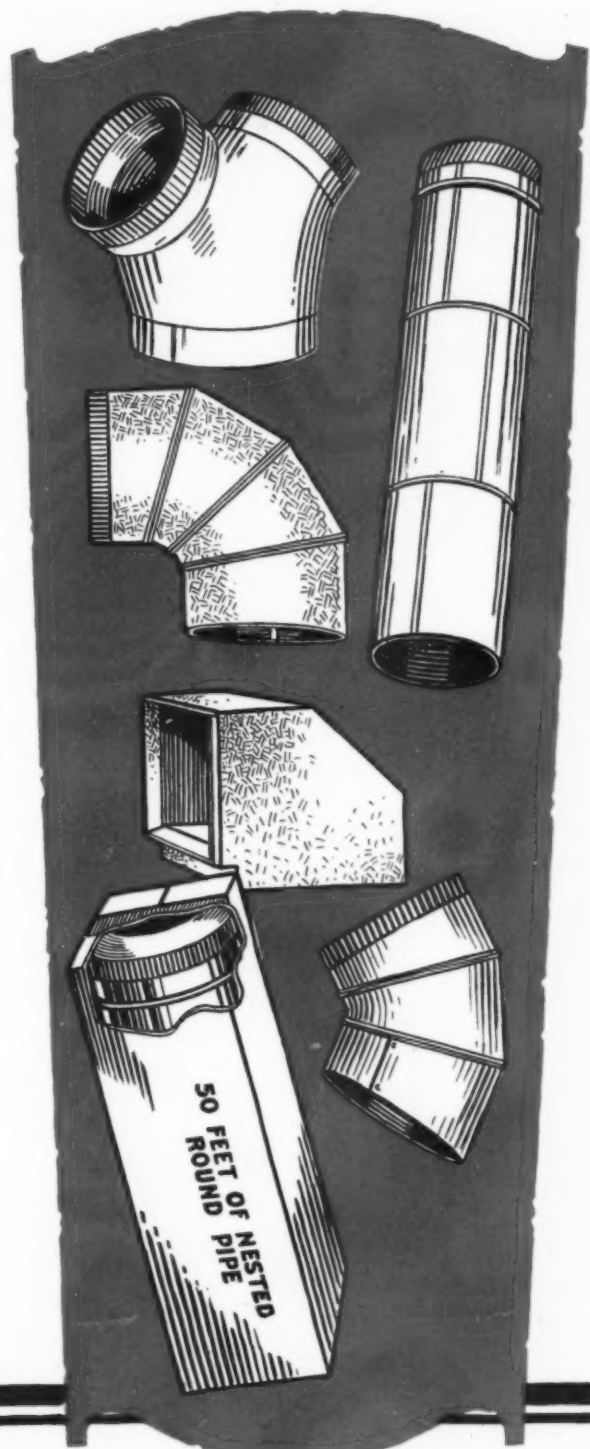
You can have the conviction when using it that there will never be any complaint from the pipe end of the job, for

***IT IS MADE TO OUTLAST THE  
HOUSE IN WHICH IT IS  
BEING USED!***

## Jobbers in Every Section of the Country Are Stocked to Give You Quick Service on Handy Pipe

If you do not know of our nearest jobber, drop us a request for our Catalogue No. 43 and our Jobber List.

**F. MEYER & BRO. CO.**  
PEORIA ILLINOIS



# HANDY PIPE



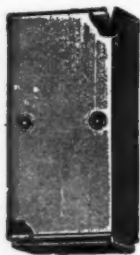
# EXCELSIOR HEATING SPECIALTIES



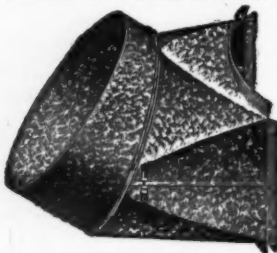
**SELF-POSITIONING  
STACK HEADS**



**No. 8 BOOT**  
Patented May 29, 1923—No. 1457126



**EXCELSIOR SELF-LOCKING  
DOUBLE WALL STACK**



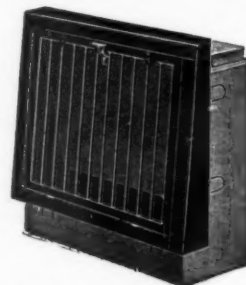
**STYLE C SHOE**  
Made with 30° Adjustable Collar.

## A Standard Furnace

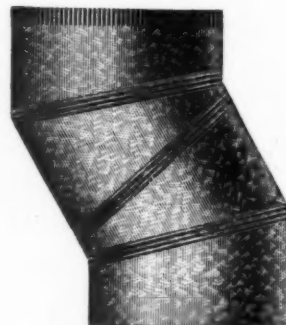


**The Excelsior Famous**

A first class Furnace Sold at a competitive price



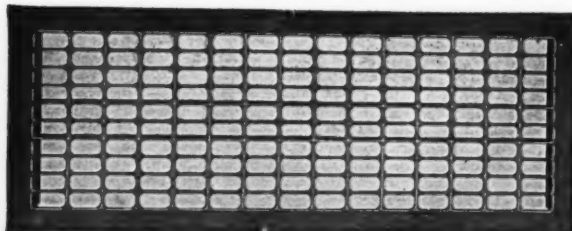
**EXCELSIOR FRICTIONLESS  
STEEL BASEBOARD  
REGISTER**



**GALVANIZED IRON  
ADJUSTABLE ELBOWS**



**EXCELSIOR STOVE PIPE  
ELBOWS**



**STEEL COLD AIR FACE CLASS 255**

Made in following sizes

12x14 — 10x24 — 12x24 — 10x30  
12x30 — 14x30 — 18x30 — 20x30



**EXCELSIOR STOVE PIPE**

*WRITE FOR CATALOGUES AND PRICES*

# The Excelsior Steel Furnace Co.

114-116 S. Clinton Street

Chicago, Illinois

## Lamneck Forty-eight Hour Service

Business has been rushing the past few weeks but our ability to ship your goods "pronto" remains the same. Lamneck "48 hour service" holds good in rush seasons as well as slow ones. That's the beauty of it—always prompt and dependable.

Your order may be shipped the same day it is received—but always within forty-eight hours. Such service means much when needed, and possibly you are in need of it now.

If so, we're ready to give real action. Just consult the handy reminder list below—check up your stock—drop your order in the mail—and let us demonstrate.

H. A. PIPE  
SMOKE PIPE  
ELBOWS  
ANGLES  
PULLEYS  
DAMPER QUADRANTS  
WALL STACK  
FITTINGS  
REGISTERS  
WOOD FACES  
CAST DAMPERS  
REGULATOR CHAIN  
ASBESTOS PAPER  
AIRCELL PAPER  
STOVE PIPE  
FURNACE CEMENT  
SHEET METAL SCREWS  
DAMPER CLIPS  
DRY PASTE  
ELBOWS

In case you do not have our catalog or desire samples, just drop us a line to that effect.



## TWO GOOD MOVES

"I'VE just been checking over the books here, Jim," said Jenkins to his co-worker, "and you'd be surprised at the story they tell compared to a year ago."

"Look good do they?" queried the partner.

"Good? Well, I guess—and do you know the reason?"

"One reason, I'd say, was when we stopped wasting time making our own pipe and fittings—stopped trying to compete with manufacturers who are equipped to make them better and cheaper than it's possible to make them in a shop."

"Good! That's one reason—and the other is when we took on this Lamneck line about six months ago. Two good moves, I call 'em. I was really surprised when I checked up. In the first place this 'simplified line,' as they call it, saves an awful lot of room. Remember how our old stock used to litter up the whole shop? Well, aside from the small space it requires, just think what that means in stock investment. It's about one-third what it was, and besides, we haven't so blamed many items to worry about."

"Further than that, the boys claim they can install a job in less time and with less trouble because of the patented features of these products and their sturdy construction."

"And in addition to all that," broke in the other partner, "just look at the service they've been giving us. Out goes the order and back comes the goods before we even think about writing to find out when they'll be shipped, like we used to do."

That is the usual story. Warm air heating contractors and sheet metal workers who formerly made their own pipe and fittings, or who have changed from another line to the Lamneck Simplified line, invariably make the same enthusiastic report.

*Write us for complete information—our catalog or samples.*

**THE W. E. LAMNECK COMPANY**  
OFFICES AND FACTORY 416-432 DUBLIN AVE., COLUMBUS, OHIO

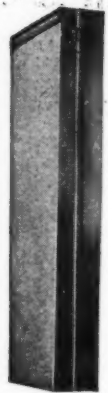
# LAMNECK PIPE AND FITTINGS

Established

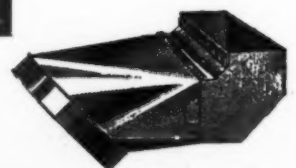
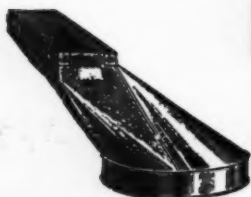
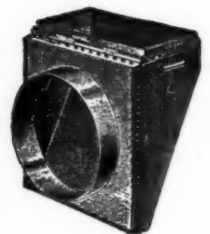
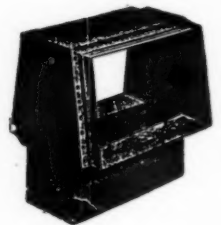
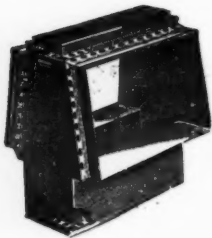
1902



NESTED



ASSEMBLED



**T**HE time to consider your best source of supply for the coming year is now at hand.

You should consider quality, price and service more now than ever before.

Your customers won't have anything but good quality—you demand fair prices so you can make fair profits and you must have prompt service.

We have built up a large business because we consider these things from **your** angle.

Chicago Furnace Pipe and Fittings are accurately designed and made to fit perfectly and quickly. The weight and quality of material that you want is found in this pipe. Thousands of the best warm air furnace heating contractors use Chicago Pipe and Fittings. Try it and you'll use it, too.

*We also carry complete stocks of all furnace supplies—at attractive prices.*

Registers—Dry Paste—Ventilating Faces—Wood Faces—Furnace Chain—Cast Dampers—Asbestos Cement—Speco Sal Ammoniac—Furnace Regulators—Galvanized Iron and Tin Sheets—Tinned Rivets—Sheet Metal Screws and Stove Bolts.

*Write today for  
our new complete  
catalog—No. 20  
and free sample  
section*

**CHICAGO FURNACE  
SUPPLY CO.**

**1276-78-80-82 Clybourn Ave.**

**CHICAGO, ILL.**






*"The quality pipe of mechanical perfection"*

# Kwik-Lok

## FURNACE PIPE AND FITTINGS

  
Sold by  
Leading  
Jobbers  
Everywhere

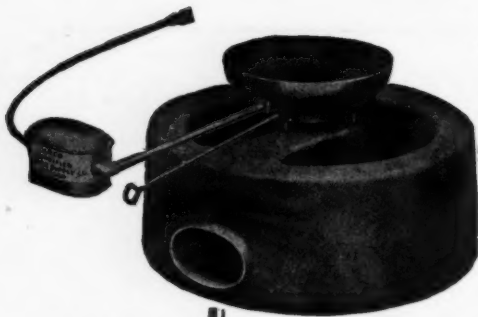
  
Order from  
your nearest  
Jobber or  
Direct



**A** FREE SAMPLE in your hands will tell you why thousands of your fellow contractors use Kwik-Lok in preference to any other furnace pipe made. Let us send you a free sample.



*"The House of Service"*  
**THE Dunning Heating Supply Co.**  
131-133 REED STREET - - - MILWAUKEE, WISCONSIN



### CARCO AUTOMATIC HUMIDIFIER

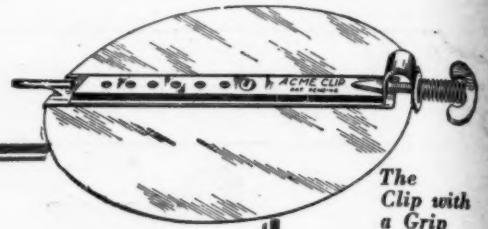
*Write for  
Special  
Circular*

**W**E manufacture these furnaces with ONE or two piece radiators also with ONE or two piece Ash Pit.



**T**HE Ash Pit and Feed Door fronts extend THROUGH the casing.

These furnaces are made with the fewest joints possible in all all-cast furnace.



*The  
Clip with  
a Grip*

### ACME DAMPER CLIP

*The only  
one of  
its kind*

## INTERSTATE AND CARCO FURNACES

**We can  
fill all your  
furnace supply  
needs—  
PROMPTLY**

**AT RIGHT PRICES**

*Write for information today*

**CARR  
SUPPLY CO.**  
414 North Dearborn St.  
CHICAGO, ILLINOIS

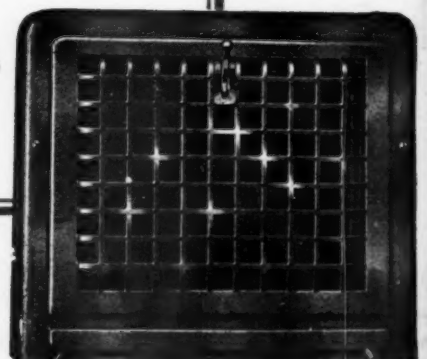
### ADJUSTABLE ELBOW

*Fits any  
place*



### AUER ECONOMY REGISTER

*Perfect  
Operation*











# RUDY

FURNACES

**"1925  
is  
Rudy  
Anniversary  
Year"**



**Success  
Built on  
Quality**



VERY furnace dealer looks forward to the time when his services and the product he sells will be *sought after*.

Thousands of Rudy dealers are in just that position today. *Many began selling Rudy Furnaces in 1915.* Better furnace installations backed up by Rudy quality has made 1924 the biggest year in Rudy history, a fitting climax to a "Decade of Achievement."

It isn't too late, Mr. Dealer, for you to imitate their prudence. There are still some communities without Rudy agencies. Write today for our

### **Special 1925 Rudy Anniversary Proposition**

Remember: Rudy quality is distinctive, Rudy price is right and Rudy policy is square.

**THE RUDY FURNACE COMPANY**

DOWAGIAC

"Think of Rudy"

MICHIGAN



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### WE COVER THE FURNACE AND SHEET METAL FIELD IN THE CENTRAL STATES

*IN the section of the United States between the Great Lakes, the Ohio and Missouri Rivers—the prosperous Central West—AMERICAN ARTISAN stands supreme. According to the circulation statements of the other business publications in this field, AMERICAN ARTISAN has a larger circulation than the total of the subscribers in this section of all the other papers.*

# Champion

Furnace Pipe  
and Fittings

**YOU** can make better installations  
by using The Standard Code—

**YOU** can make better installations  
by using

**CHAMPION**  
FURNACE PIPE and FITTINGS

Write to Dept. A for  
complete catalog

**YOU** have to use Champion Pipe  
to appreciate it and after you  
use it once you will like it as thou-  
sands of other men do.

Write for our big complete catalog  
now—it illustrates and describes  
Champion Pipe in detail and lists  
a most complete line of furnace  
supplies.

*We can give you the kind of service you've  
always wanted.*

**CHAS. JOHNSON CO., INC.**  
916-18-20 South Adams St.  
PEORIA, ILLINOIS

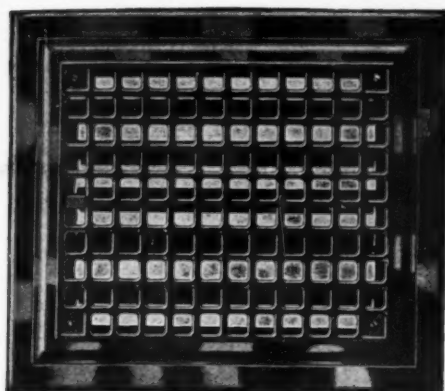
Registers  
and  
Heat  
Regulators



Furnace  
Cement  
Wood Faces  
and  
All Furnace  
Supplies

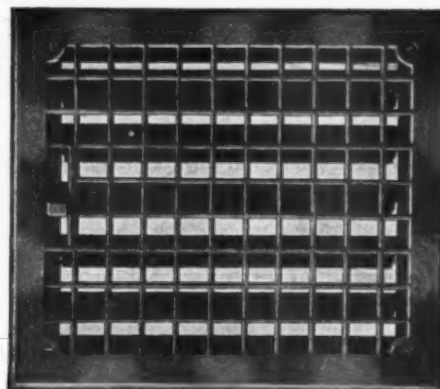
*Champion for Many Years*





All-Steel Register

For  
One  
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House  
In



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every distributing Center  
Auer's is a good line to annex  
Auer line includes every type and size  
of register for every purpose

Also

Various designs of Wrought Metal Grilles  
for ventilating and radiator enclosures

Anything not to be had elsewhere—

Auer Company furnishes  
pronto

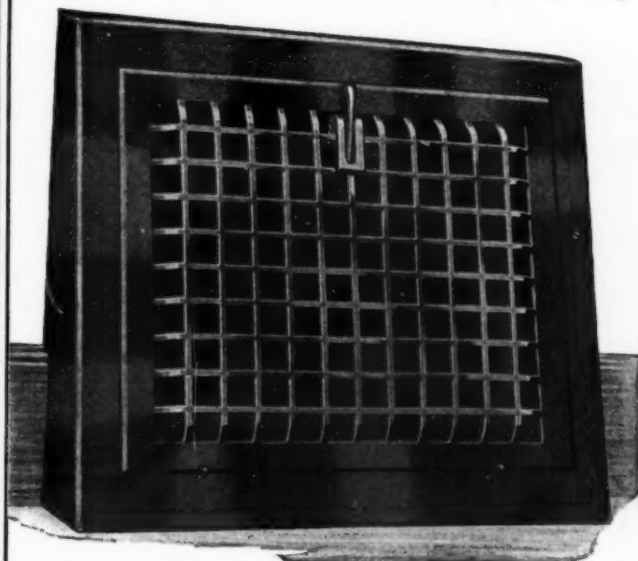
*The* AUER REGISTER CO.  
CLEVELAND, O.

*Announces*

**A New Size**

9x12 having 3 1/4" flange, and increased Capacity for 10" pipe  
\$3.00 List Price

Also attractive "Art" Finishes at same cost as white  
Send for New Register Booklet No. 25



Colonial Model



Economy Model



*THE illustration at the right shows the New Standard with shutters open.*

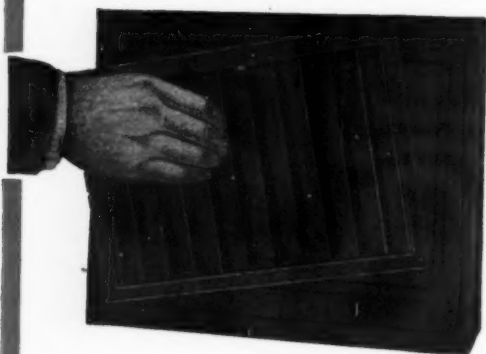


*THIS design as you can readily see gives full capacity with the least possible resistance.*

# New Standard

## STEEL BASEBOARD REGISTER

*The new and Better Register that has proved popular and practical*



THE New Standard Register conforms to the Standard Code both in sizes and principles. The Code was our inspiration in designing and naming this register and consequently we developed a highly practical construction to provide the full capacity of free air flow and a pleasing design to give added beauty.

Since its arrival on the market the New Standard has set a new pace for popularity.

It is the register that will help you sell better jobs—it is priced right and is guaranteed highest quality.

*Let us send you complete details, illustrated circulars and prices NOW.*

**Waterloo Register Company**

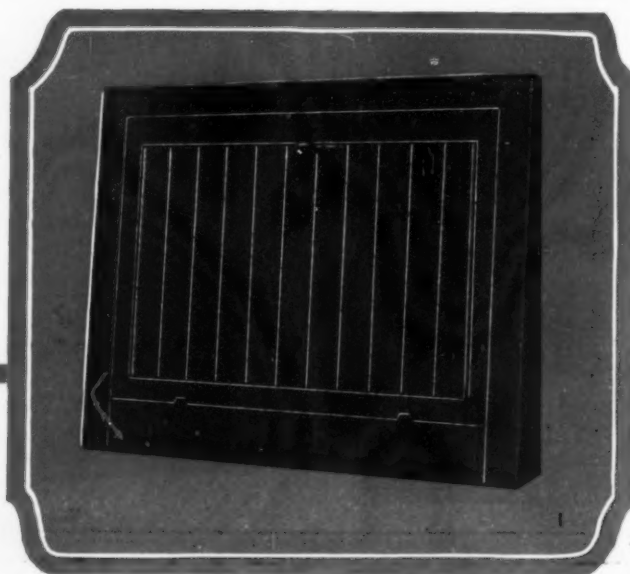
**Waterloo, Iowa.**

Seattle Wash.

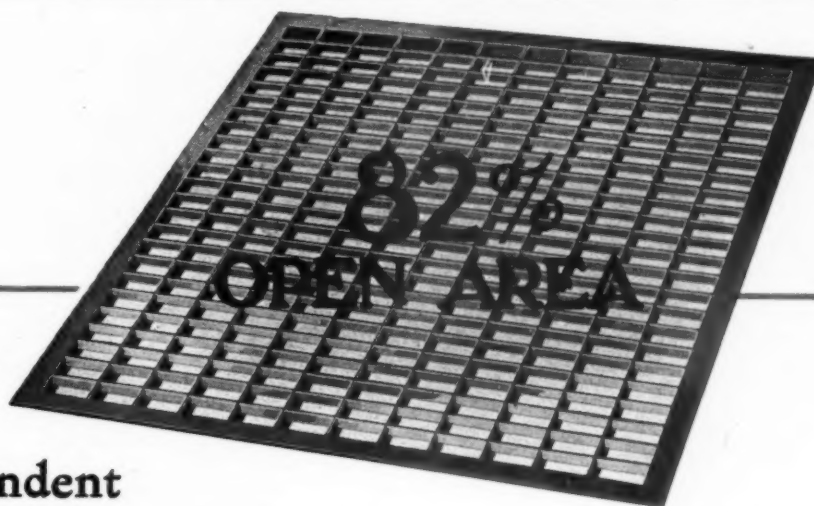
Office 90 Blanchard Street

THE face of the New Standard is secured by two screw heads and is easily detachable. The operation is extremely simple and fault proof. Shutters are of polished steel and finished same as register. The easiest register to keep clean. Constructed of the highest grade durable material and made in all sizes to conform to the Standard Code.

*THIS illustration at the right shows the neat attractive appearance of the New Standard when shutters are closed.*



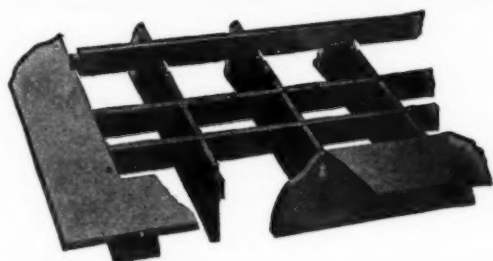
*THE New Standard presents an especially clean and decorative appearance. It can be had in all the Standard finishes.*



Independent

***"FABRIKATED"****Register Faces*

--

*Pipeless Gratings***No Breakage****Save in Cost and Floor Space****Construction:**

The outer frame of angle iron, the grill formed of strip steel  $\frac{1}{8}$  in. wide, in varying depths to  $1\frac{1}{2}$  in., depending upon the size of the face, all fabricated into uniform squares with openings  $\frac{7}{8} \times 1\frac{1}{8}$  in. The strips are securely interwoven and the frame corners welded.

**Cold Air Faces**

For Round Pipes	Face Size Floor Opening Inches	Open Area Square Inches	LIST PRICES		
			Black Japan	Oak Finish	Ox. Cop. Plated
14 inch pipe	8x24	155	\$3.00	\$3.15	\$4.40
Capacity of pipe	8x30	194	3.60	3.85	5.00
154 sq. in.	9x24	175	3.30	3.45	4.70
	14x14	157	4.05	5.60	7.15
16 inch pipe	8x30	194	3.60	3.85	5.00
Capacity of pipe	9x30	219	3.70	3.95	5.10
201 sq. in.	10x24	194	3.60	3.75	5.00
	16x16	206	5.10	6.20	9.10
18 inch pipe	10x30	243	3.75	4.00	5.50
Capacity of pipe	11x30	267	3.85	4.10	5.60
254 sq. in.	12x24	233	3.75	4.00	5.50
	12x30	292	4.00	4.50	6.00
	18x18	262	7.20	9.05	12.45
20 inch pipe	12x30	292	4.00	4.50	6.00
Capacity of pipe	13x30	316	4.25	4.75	6.25
314 sq. in.	20x20	323	8.00	10.00	13.00
22 inch pipe	16x30	388	11.00	13.80	18.25
Capacity of pipe	22x22	392	11.40	14.25	19.40
380 sq. in.	18x30	437	13.25	16.35	21.00
24 inch pipe	20x30	486	13.50	16.85	22.50
Capacity of pipe	24x24	468	12.00	15.00	22.00
452 sq. in.					

**Warm Air Faces**

Round Pipe Diameter Inches	Round Pipe Square Inches	Proper "Fabrikated" Face Size	"Fabrikated" Face Square Inches	LIST PRICES	
				Black Japanned	Ox. Cop. Plated
12	113	12x12	115	\$ 2.70	\$ 5.05
14	154	14x14	157	4.05	7.15
16	201	16x16	206	5.10	9.10
18	254	18x18	262	7.20	12.45
20	314	20x20	323	8.00	13.00
22	380	22x22	392	11.40	19.40
24	452	24x24	468	12.00	22.00
26	530	26x26	548	16.50	27.50
28	616	28x28	637	19.00	32.50
30	707	30x30	731	21.50	37.00
32	804	32x32	833	26.00	49.00
34	907	34x34	940	30.00	54.00
36	1018	36x36	1055	35.00	60.00
38	1134	38x38	1176	42.50	71.00
40	1256	40x40	1303	50.00	85.00

**Additional Sizes—Special Sizes**

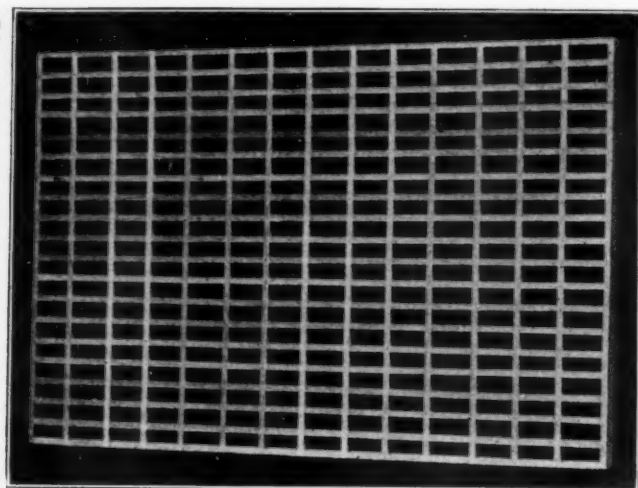
*We can furnish promptly  
any size in any finish.*

Ask for a copy of the "Fabrikated" Booklet

**Independent Register & Mfg. Co.**

200 Perry-Payne Bldg.

Cleveland, Ohio



**For  
Extra High Grade  
Wood Faces**  
be sure to

**Specify—**

*Eaglesfield*

**Large  
Free Air  
Capacity  
—  
Appearance  
—  
Strength**

**E**AGLESFIELD quality faces are made with openings  $1\frac{1}{8}$  inch by  $\frac{7}{8}$  inch. This provides proper free air capacity.

Eaglesfield makes its faces stronger than any other manufacturer. The cross pieces are  $\frac{3}{8}$  inch deep which is  $1/16$  inch deeper than those used in ordinary wood faces.

For neat appearance you can't beat Eaglesfield's faces. We use only the finest white quartered oak and the workmanship is unsurpassed. Eaglesfield's faces are truly fine quality. They will please your customers and they are economical.

*Write for prices and sample.*

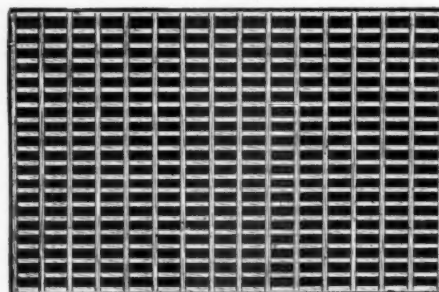
**EAGLESFIELD VENTILATOR CO.**

**"Sudden Shippers"**

**916 Dorman St.**

**INDIANAPOLIS, IND.**

*For over Twenty Years  
we have specialized  
in the manufacture  
of this one product*



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**W**HEN you buy American Wood Registers you know you are sure of them being the highest quality in all respects.

Because of our long experience and the fact that we make just this one article we make them better and we can afford the best materials and the best workmanship.

American Wood Registers are subjected to a rigid examination before leaving the factory—every one you receive is perfect and ready for your job.

American Wood Registers have the strength and appearance you and your customers want—they help to get a better profit for your work.

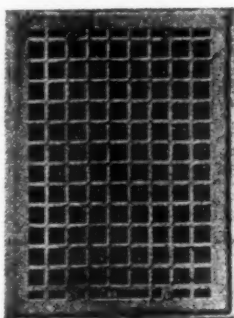
Try a few and see why they are the Standard for thousands of your fellow contractors.

*You can order now for future shipments—  
write for prices and full details today.*

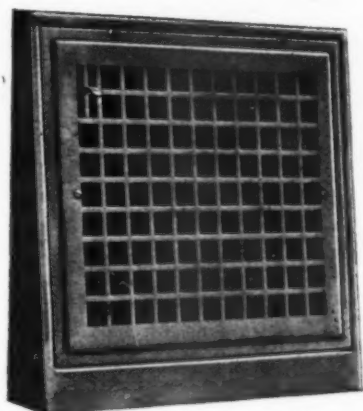
## **THE AMERICAN WOOD REGISTER CO.**

**PLYMOUTH, INDIANA**

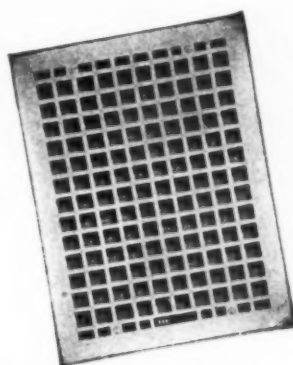




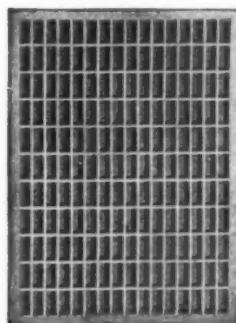
Beveled edge all steel No. 70.



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Cast iron cold air face—Style C

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TRY to gauge your needs now for next year and place your register order to cover them. Do it while the quantity prices are in effect.

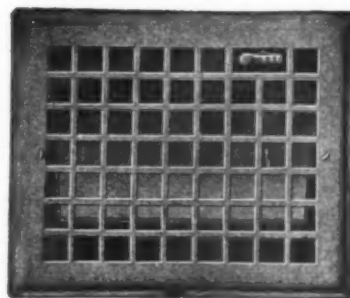
If I were you, wouldn't lose any time worth talking about, in hot footing in an order for any or all these five I'm showing you.

Get your stock up.

It's the surest way of keeping your back down, when prices go up.

It's a doggone good way to give your bank account red cheeks, without doing any hand painting.

*Tee Bee*



All steel, reversible, No. 40

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For over 75 years Makers of Registers

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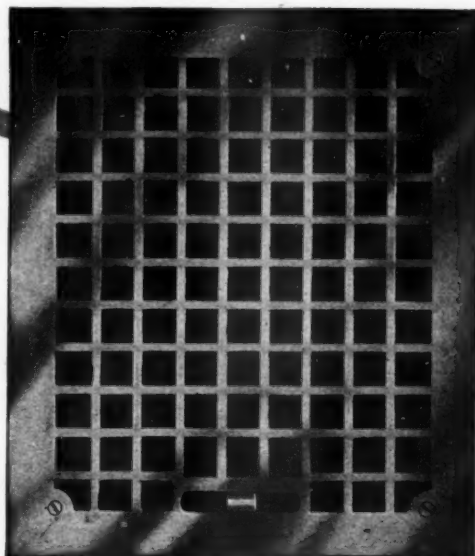
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*The Newest  
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Floor Register  
to be had—*



*MADE by the makers of Walworth Double Gratings, Semi-Steel Registers, Side Wall and Baseboard Registers, Ventilators, Borders and Casing Rings.*

*Write today for our complete catalog.*

**"IT'S** a peach of a register"—that's what the boys say about it and we made it to be unbeatable and it is. Warm Air Heating Contractors who want to use the best they can get—and yet make a good profit are using this new Walworth exclusively.

It has real high quality, neat attractive appearance and a practical design.

The new operating device is **positively** the feature you've always looked for—it cannot get out of order or become weak.

The highly pleasing appearance is lasting because this register is dipped and baked producing a very superior finish. It will not rust. Finished in Black Enamel and Oak—also other standard finishes.

The box is fabricated of 20-gauge steel—extra strong.

This register will more than meet your expectations—try some now and see. Complete stocks on hand at all offices listed—write for price list today.

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*Distributors:*

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Hart Mfg. Company, Louisville, Ky.  
Phillips and Buttorff Mfg. Co., Nashville, Tenn.

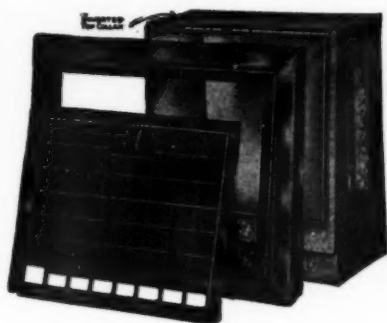
*Eastern Representative:*

Penn Tinsmith's Supply Co., Philadelphia, Pa.

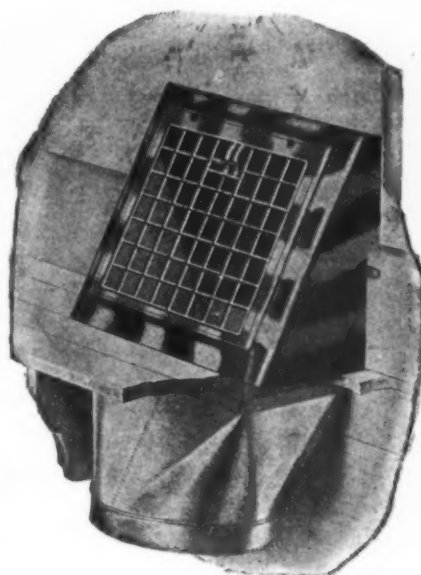
**WALWORTH**  
"Positive Operation"  
**FLOOR REGISTER**

## Outstanding Features That Help to Sell

have always characterized the Rock Island Line of Warm Air Registers. Every register in a class by itself for a specific class of work. Not misfits but registers designed to meet the Heating Requirements of Today.



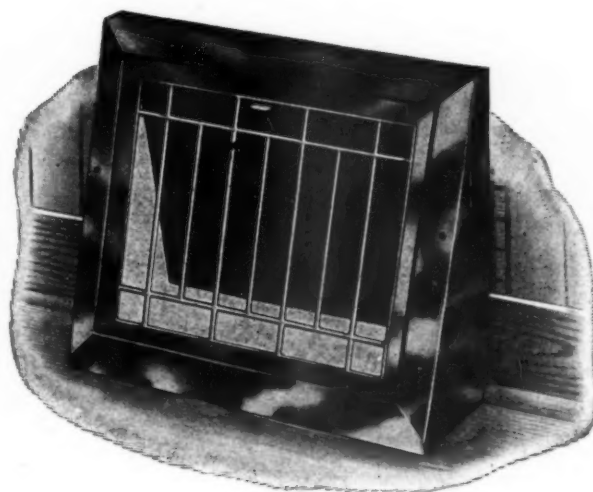
**REGISTERS  
NO-STREAK  
SATISFY  
EVERYONE  
BECAUSE THEY  
ARE  
GUARANTEED**



**You cannot do without the  
OUT - O - WALL REGISTER  
and do yourself justice as a  
Heating Man.**



**The last word in  
Warm Air Register  
designing that  
"fills the bill."**



**A Standardized  
register which is  
fully 100% effi-  
cient in every  
particular.**

***Get our proposition  
before you buy for 1925***

**ROCK ISLAND REGISTER CO.**

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ROCK ISLAND, ILLINOIS**

**ROCK  
ISLAND  
REGISTER  
COMPANY**

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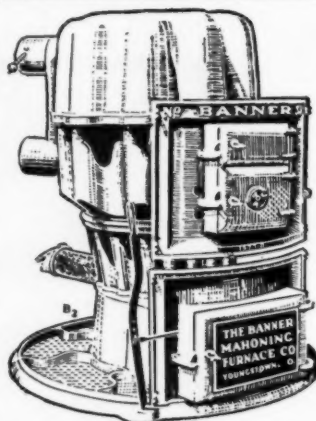
Send me your catalog  
and price list.

Name.....

Address.....

A.A.





## "Don't Buy an Orphan Furnace"

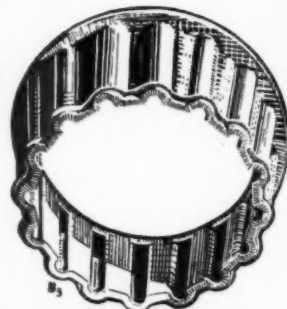
A DEALER in changing his line of furnaces should consider Quality, Service and Stability. The Banner-Mahoning quality is known as the best. Our service is second to none, our stability is unquestioned. This is proven by the large number of Dealers hoisting our Banner this year.

*We can still take care of you.*

*Write for catalog.*

**THE BANNER MAHONING FURNACE CO.**

MAIN OFFICE AND PLANT: YOUNGSTOWN, OHIO



## HUMIDIFIERS for FURNACES and RADIATORS



THE above shown Humidifier for FURNACES has 252 square inches of dew-moist surface and is inserted into any furnace and connected with water supply in less than an hour's time.

*Write for circular, prices and full information today.*

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CHICAGO, ILLINOIS

## "American Seal" FURNACE CEMENT

**Roof Cement—Stove Putty  
Plumbers Putty**

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WILLIAM CONNORS PAINT MFG. CO.  
TROY

Established 1852

NEW YORK

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Western Distributor  
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Edition**

264 PAGES

**Revised  
and  
Enlarged**

PRICE \$3.00



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By W. G. SNOW

THIS book deals with the different types of furnaces, their construction, proper location and setting together with furnace fittings. It is the standard authority.

This new edition contains a chapter covering the main features of one pipe or pipeless furnace heating, which has become a big factor in warm air heating.

**Contents**—Furnaces: House Heating, Combination Systems; Air Heating and Ventilation of School Buildings; Heating of Public Buildings, Churches and Stores; Fan Furnace Combination System; Temperature Control; Estimates and Contracts, Fuels; Miscellaneous Tables and Data; Furnace Fittings; Miscellaneous Notes, from Various Sources on Furnace Heating.

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BOOK DEPT.

**AMERICAN ARTISAN AND  
HARDWARE RECORD**

620 South Michigan Avenue

Chicago, Illinois

## PERFECT COMBUSTION OF FUEL

*To Manufacturers of Heating Plants*

Whether Warm Air, Hot Water or Steam

Our fuel economizer when attached to feed door of furnace will increase its efficiency 20% to 40%. This device is the most efficient and simplest, for the purpose, ever invented. It's patented. (Eventually you will adopt it.)

### TO HEATING PLANT RETAILERS

There are hundreds of furnaces within your territory that need the fuel economizer, to bring them up to date. This device having been in users hands for the past three years has proven all claims made for it. Address—

**THE FUEL ECONOMIZER COMPANY**

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SIOUX CITY, IOWA



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### THE WESTERN BOILER PLATE FURNACE

is new enough not to be "hide bound" by ancient heating practices yet old enough to have been proven an efficient heating plant through use all over the country.

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Let us tell you how one dealer sold over a hundred furnaces in ten months. We'll also give you complete prices and a full statement of dealer's proposition.

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MINNEAPOLIS, MINN.

COMPLETE  
STOCKS

PROMPT  
SHIPMENTS

STOVE  
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BOILER  
**REPAIRS**  
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STOVE REPAIR CO.  
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The Oldest and Largest  
We Can Save YOU  
Money

SEND FOR ILLUSTRATED  
BOOK OF ORDER  
BLANKS

ACCURATE  
SERVICE

PRICES  
RIGHT

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VEDDER PATTERN WORKS **IN WOOD and IRON**  
ESTABLISHED 1835 **TROY, N. Y.**

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IRON AND WOOD

## STOVE PATTERNS

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The  
**POINTER**  
Specialized  
Range

*We make just this one style range—but we make many of them—at a price that makes brisk business for you.*

Specializing on this one range has brought our selling price down to rock bottom. This price enables you to sell your customers a good range at a reasonable price—yet you make a good profit.

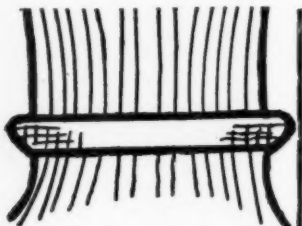
Let us tell you how other dealers are doing a big range business with the Pointer.

*Write for circulars and prices today.*

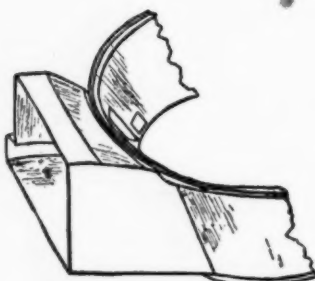
GOHMANN BROTHERS AND KAHLER  
New Albany, Indiana



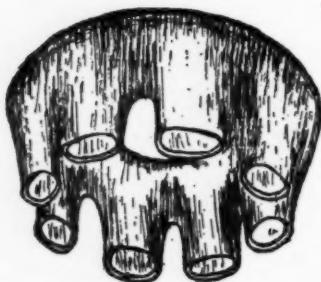
*Scaled Cup Joints where castings join*



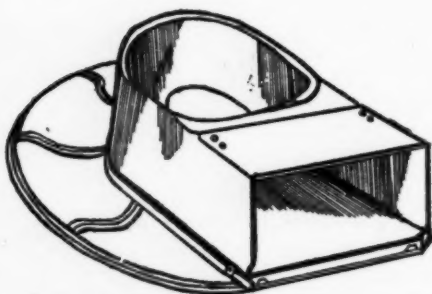
*Expansion Rings where radiator sets in the combustion chamber*



*One-piece Feed Chute—no joints, cast with the combustion chamber*



*Heavy Cast Iron Radiator made without seam or joint, entirely self-cleaning*



*No Joints in Ashpit—pit springs into position in flange of base, making it absolutely tight.*

## Guarding Against Gas Leakage

in the construction of all

### INTERNATIONAL CARTON FURNACES

**E**VERY cast iron furnace is made up of several separate castings. In this respect there is a remarkable similarity in design, but how these castings are designed, constructed and united into a complete heater is of vital importance, and where the Carton is superior to the ordinary furnace.

A weakness in construction, faulty installation, or a poorly designed joint will soon cause a furnace to leak smoke and gas.

When this occurs you are blamed, even though it may be a fault of construction.

**INTERNATIONAL** Carton furnaces are built to satisfy the most exacting customer. At every point where castings connect joints of proper size and design have been provided. All unnecessary joints have been eliminated. The possibility of gas leakage is reduced to minimum.

Of course it costs more to make a furnace with few joints, **self-cleaning radiator and sealed cup joints**, but figure what it means to **you** to have a furnace like this to offer your customers.

Furthermore, the Carton has demonstrated its ability to stand up under hard usage and give years of economical and satisfactory service.

In nearly every community there are Carton Furnaces which have been in use from 30 to 60 years. We are telling your prospects these facts thru our National Advertising.

*Will you be ready to supply the demand? Send for Catalog 1563-A and complete information.*

## INTERNATIONAL HEATER COMPANY

UTICA, N. Y.









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the  
Warm Air Furnace,  
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Stove and Hardware  
Industries

Founded 1880

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No. 26

## *Sell the Standard Code—Your Job*

THE Warm Air Furnace Industry has made great strides in the past few years, and 1924 marks an important epoch in the march of progress.

Not only has business been fairly good, everything considered, but several new factors have entered into the situation, all of which have had and will continue to have a tendency to improve conditions in the field.

The Standard Code for Installation of Warm Air Furnaces in Residences has been approved by the five principal bodies in the warm air heating field—engineers, manufacturers, wholesalers, dealers and installers.

The Research Residence in Urbana, Illinois, is a fact instead of a plan.

The Publicity Committee is at work.

But the key to the situation is with the installer. There are still too many installers who believe that warm air furnaces can be sold only on a low price basis and that it does not pay to do good work, because owners and builders will not pay the price necessary to obtain a reasonably good installation.

As a result, they maintain that the Standard Code is of no value to them, because they cannot follow it and meet the competition of the low price hawking fraternity.

It is probably true and probably will be true for a long time to come that cheap goods and cheap work can be sold easier than good furnaces and reliable work. But the fact of the matter is—and it is demonstrated every day—that wherever a man really believes in the Standard Code and has a bit of backbone and ability to use his brain and his tongue he also sells the better type of installations, and gets a price commensurate therewith.

The principal object for 1925 of the installer who has the true interests of the furnace industry at heart and who would rather do good work than shoddy work, is, therefore, to give his special attention to the matter of letting his people—the home owners and builders in his locality—know what the Standard Code means to them in added comfort, greater convenience, increased efficiency and lowered cost of maintenance and operation.

Every advertisement he has published should contain some reference to the Standard Code and to the fact that he installs all his furnaces according to the Standard Code.

But in order to live up to that rule, the installer must first be thoroughly sold on the Code, and we are inclined to believe that that job is strictly up to the representatives of the furnace manufacturers who call on him—and this means that the manufacturers must see that no salesman is sent on the road who is not sold on the Code. Right now we can count quite a lot of so-called furnace salesmen who have very little conception of what the Standard Code implies, and many of whom either ignore it or actually talk against it.

We are glad to state, however, that we also know of many instances where salesmen make it a point to sell the Code to their customers, as well as to such owner-prospects as they call on for the installers.

So then, let everyone who makes or sells or installs furnaces—be it in carloads or singly—talk Standard Code and what its application means to owners of homes, and it will not be long before the shoddy-work-contractor will find his business gone—which will mean more work for those who make good installations.



## *Random Notes and Sketches.*

*By Sidney Arnold*

May every day of 1925 bring you increased happiness and your full share of the nation's prosperity.

\* \* \*

I had a nice visit the other day with Walter Carroll, Vice-President of Inland Steel Company and one of the prominent men in the Sheet Steel Trade Extension Committee.

As I entered Walter's office he was lighting a pipe and thereby hangs a tale.

His face did not have its usual smiling appearance, and he was honest enough to admit that it did not taste very well, and accepted one of my cigars, explaining that he had won a couple of very fine pipes in a golf tournament in Canada last Fall, and ever since he has been trying to break them in and with rather poor success. At any rate, he kept smoking cigars all during the several hours I was with him.

I can readily sympathize with him, for I have been trying to break myself into smoking a pipe, and incidentally also breaking in several pipes, for more than ten years, but am still far from an expert.

\* \* \*

As many of you know, E. B. Langenberg has been "enjoying a vacation" up at the well known establishment of Dr. Mayo in Rochester, Minnesota, and they tell me that he is going to be as good as he was before he began to eat double chocolate sundaes.

The following story is apropos of his visit there, but I am sure that E. B. did not meet with the experience of the patients referred to in the story:

An Irishman coming out of ether in the ward after an operation, exclaimed audibly:

"Thank God! That's over!"

"Don't be too sure," said the man in the next bed. "They left a

sponge in me and had to cut me open again." And the patient on the other side said, "Why, they had to open me, too, to find one of their instruments."

Just then the surgeon, who had operated on the Irishman, stuck his head in the door and yelled, "Has anyone seen my hat?"

\* \* \*

Figure it out as you please, stretching out ahead of each one of us are just about so many years. In those years are so many months, so many days and hours.

If we live each one with the purpose of giving our best and finest of worth and work to the world—then at the end of life can we look forward with confidence into the "great future before us" because we look back into a worthy past behind.

\* \* \*

Recently we had a bad sleet storm in Chicago. Walking was difficult and many people were badly hurt by falls on the slippery sidewalks.

Out in the suburb where I live there are two business sections about half a mile apart. The merchants in one are prospering while those in the other are not doing so well—and there may be a reason for the difference in the way the sidewalks were taken care of during and after this sleet storm. Early in the morning fine gravel was scattered, not only on the walks in the actual business section, but for a block outside on all streets leading thereto; in the other neighborhood nothing was done until after noon.

This winter, suppose you make it a point to see that the sidewalks in front of your store or office is kept clear of snow and ice, or when this is not possible, that sand, gravel or salt is scattered thereon, so that people will not slip. You may not be obligated by law to do this, but

your possible customers will be more likely to feel favorably disposed toward you if you do show them a little consideration.

\* \* \*

"The ways of a salesman are devious and various," says Murray Springer, Managing Director of the Sheet Steel Trade Extension Committee, "just like the ways of a certain young lady."

"She was one of those maidens who believe in spurring on the efforts of would-be suitors by 'treating 'em rough.' As a matter of fact, she had carried this principle into effect with such deadly results to the young hopefuls that she had defeated her own purpose. So vigorously did she repulse the young men who came after her hand that in the end they gave up the idea of wooing her altogether."

"She resolved to mend her ways."

"One day a certain young gentleman was sufficiently enraptured to steal a kiss. She gave a faint scream, and, indignantly drawing herself up to her full height, said: 'If you attempt to kiss me again I shall call papa.'

"Where is your father?" inquired the beau.

"In California," she replied softly, and with eyes cast down."

\* \* \*

"We were talking about the proper word to use," said John Lorenz, of the Chicago Furnace Supply Company. "Keith maintains that the term I use is wrong, and I know that he is off on that. In fact, he reminds me of the old lady in a story I heard the other day," and then he told this tale:

The clergyman's daughter was very enthusiastic about the new choir leader and when she called on an old lady of nearly 80 she soon turned the conversation in his direction.

"You know," she said, "he is capable in so many ways. But what I like about him most of all is that he is a true altruist."

"Well, I'm surprised to hear that," exclaimed the old lady, "for I heard him singing last Sunday, and I could declare he was a tenor."

# Errors of Past Can Be Made to Serve in Making Future More Successful

**President Langenberg Suggests That Inventory of 1924 Actions Be Guide for 1925**

**I**N the following article, E. B. Langenberg, President of the National Warm Air Heating and Ventilating Association, makes many valuable suggestions for sheet metal and furnace men—valuable because they are so very practical and sensible. Read what Mr. Langenberg says and then act on his advice:

## Plan Your Business

Just at this time, which is most advantageous for reviewing the results of our efforts of 1924 and for planning our work for 1925, there are a few things that one is reminded of which make for better success in the future.

A very good plan to assemble these facts is to sit down and write out all of the mistakes that occurred during the year past and then to thoroughly analyze the cause for error and the remedy applied.

Certain jobs have been done at a loss. To determine where the error lay and to prepare for not making the same mistake in the future is good common sense.

Having settled in our minds our policy in reference to past errors, the next step is to plan for new business just ahead.

Speaking at random, I should lay out plans for the following six lines:

- (1) Finance.
- (2) Sales.
- (3) Advertising.
- (4) Service.
- (5) Credit and Collections.
- (6) Management.

Taking them in the order given, and briefly:—

(1) Arrange credit at bank. Determine on the volume of business you are going to do. Lay out a definite budget for definite departments. Protect your own

credit by prompt payment of bills and fulfilling all moral obligations.

(2) Plan an increase of sales over 1924 and set a definite goal. Organize a monthly mailing campaign to your prospects covering at least one subject a month. Agree with yourself that you will follow up every call or prospect promptly. This is a virtue sadly lacking in many people.

(3) Plan an advertising campaign covering the entire year.



E. B. Langenberg

Ads to cover seasonable goods and to include your own artistic window display. Use the printed matter furnished you by manufacturers, as you can secure this a great deal cheaper than you can possibly have it made for yourself.

(4) In giving service, one is supposed and always expected to be prompt. Your workmanship should be exceptional, in that it is better than any one else.

(5) Watch your credits carefully and never permit one customer to secure credit beyond his ability to pay. This frequently breaks up friendships and injures

both parties. When the job is completed, collect promptly. No man can resent a demand for payment. If he does, he is subject to suspicion unless you have failed to do your part.

(6) It is up to you as head of your own business to provide the plans which keep your employees busy. Wasted effort on their part is a reflection on your own ability. Think of this before criticising a workman.

## Study Your Business Papers

Management presupposes that you are keeping in touch with current events at least in your own line of business. If you are a Sheet Metal Contractor, the best way to know what is going on in the Trade is to join your Local or State Association and to subscribe for the Trade Papers which cover your line. If you are in the heating business, you should keep in touch with the Research Work that is being done by the Manufacturers and Heating Engineers. Their present plans do not call for any expenditure on your part to secure the information that they are paying for. What they are doing is for the industry as a whole and you are a part of that industry.

Membership in your local Chamber of Commerce, Rotary, Lions, Kiwanis and other civic Clubs, where you can mix with your fellow-townsmen and become a better citizen in the community, is of as much importance to you as any one thing that you can do locally.

Your system of bookkeeping should be complete in detail covering records, costs, overhead profit and various details that make it possible for you to *know* what is going on and whether you are making a success or a failure of your own business.

The prospects for 1925 at the present writing look exceptionally good. It pays to be an optimist regardless of conditions. The results of your efforts in 1925 will depend to a great extent on the degree of enthusiasm, organization and en-

ergy that you put into the plan which you lay out now. The man without a plan is like a kite without a tail; it goes hither and thither and finally hits the ground head on, causing merriment to most of the spectators.

## **Secretary Williams Calls 1924 Red Letter Year in Warm Air Heating Industry**

*Research Residence and Greater Application of Standard Code Are the Chief Factors*

**A**LLEN W. WILLIAMS, Secretary of the National Warm Air Heating and Ventilating Association, writes as follows:

In your Warm Air Furnace Special, a year ago, someone, perhaps myself, ventured to predict that 1924 would be a red letter period for the manufacturers of Warm Air Heaters and Accessories.

It is, therefore, gratifying to note as the year draws to a close that that rather easy prophecy has in part at least come true. If the forecast referred only to financial gain which 1924 would bring to the industry the predication has not been fulfilled, for the margin on what has been a rather large volume seems to have been unreasonably small.

It is only a year ago since the members of the National Warm Air Heating and Ventilating Association expressed their faith in the Research Work being carried on in Urbana, Illinois, and in the future of Warm Air Heating by agreeing to build and equip a Warm Air Heating Research Residence near the State University. The end of one short year sees this unique house, representing an investment of \$25,000, completed.

Much as this means to the engineering side of Warm Air Heating it cannot help but prove as well a wonderful aid in advertising our method of heating. Through the Research Work supported by the

Association and carried on under the direction of Professor A. C. Willard and his assistants, Professors A. P. Kratz and V. S. Day, Warm Air is becoming an exact science, and the manufacturers of Warm Air Furnaces and their ac-



Allen W. Williams

cessories are now prepared to educate and convince the home owner as to the efficiency, comfort and satisfaction of that method of heating.

1924 also showed marked progress in the use of the Standard Code. We are now justified in asking the manufacturers, the installers, architects and consumers to sincerely feel that a Warm Air Heating system is the best for the average home.

1925 promises well for all business and for Warm Air Heating in particular.

## **Furnace Manufacturers Show Sales Increases of 30 Per Cent for 1924 Over 1923**

One question which is to some extent indicative of the progress in the warm air furnace industry is the increase in sales of furnaces during 1924 over those of 1923.

The questionnaire sent out recently by AMERICAN ARTISAN contained the following question: "How do your sales for 1924 compare with those of 1923?"

Taking the total number of manufacturers who answered the question as 100 per cent, and compiling our statistics from that point, we find approximately 60 per cent of the manufacturers reported an increase in sales over 1923. Carrying our statistical compilations one step farther, we learn that the average increase in sales of the 60 per cent who reported increases was 30 per cent.

There were 28 per cent of those answering the question who reported that sales for 1924 were just equal to those of 1923, while the remaining 12 per cent reported an average decrease of 15 per cent.

We wish to add that many of those manufacturers who returned the questionnaire were reluctant to reveal the status of their sales for comparative purposes.

Our figures, therefore, while revealing the trend of progress in a general way, are not all-inclusive. We believe the percentage of those showing increases in sales is actually much higher than the figures available reveal.

There's a homely, but meaty saying that before you put anything over, you have to think it over. Employes often feel that their employers don't give enough consideration to suggestions. They can't "sell the idea to the boss." In the majority of cases you will find that it is because the employe hadn't put enough real thought on the proposition. If he had he would either recognize its weakness, or would so firmly grasp the strong features of the proposal that he could present them convincingly.



## Installers Must Satisfy Their Customers to Make Their Business Worth While

*And With Good Installations Will Also Come Better Profits, Says H. W. Symonds*

HERB SYMONDS, who served well as President of The Western Warm Air Furnace & Supply Association, as usual, points out some real facts for the installer and manufacturer of warm air heating apparatus to consider, in the following article:

The Warm Air Heating Industry has increased in leaps and bounds the past few years. I see no reason why there should be any decline in business the coming year, with the extraordinary efforts on the part of the manufacturers in pushing the Research Work and other associations co-operating with the dealers in many helpful ways.

When we stop for a moment to consider the flexibility in the art in which we are engaged, a Warm Air Heating Plant is within reach of the most humble home to the most elaborate residence, churches and schools, we can be proud of the achievement; however, it is essential that dealers continue to satisfy the consumer, who, after all, is the proof of success. A satisfied customer will not only pay a legitimate price, but will do a great deal of good advertising for the installer and for the industry.

I may not be presenting anything new to you, perhaps, but what I say may serve to remind you of the possibilities which 1925 has in store for us.

The use of the Standard Code is slowly finding its way into general use, while there are circumstances when a set rule cannot be followed, the code should be considered a manual of authority and can be relied upon to give satisfaction, when followed closely, at least in part, is my best judgment.

I cannot close without commenting on the marked improvement in the dealers' show rooms within the past year. To my mind, next to

the installation itself, no better investment could be made, a real cozy meeting place for you and your prospective customers.

Dealers who have not given this consideration should do so. Command the respect in your home city to which your business and your ability is entitled, remembering there is one thing money will not buy, nor is it manufactured, but created—Goodwill.

Then, too, AMERICAN ARTISAN is to be commended for the many



Herbert W. Symonds

helpful ways it serves to aid in this great work.

To my many friends and business associates in the various sections of our forty-eight states, I take this opportunity of extending my sincere wishes for your good health and financial success during 1925 and the years to follow.

### **Furnace Installers Find Quality Work and Service Best Business Builders**

Interesting as well as instructive is the subject of how the warm air furnace installer finds his prospects for furnace installations.

A questionnaire sent out recently by AMERICAN ARTISAN revealed

conditions, a knowledge of which is important to the industry as a whole.

The striking thing learned—and the most encouraging—was the fact that by far the greater percent of the installers get their new work purely on the basis of quality work and service. A veritable repetition of the old truth that the satisfied customer demonstrates his find to his friends, who in turn do likewise. In this respect one man went so far as to say that people came distances of many miles to have him do their work. Such men had all the work they could do without further effort.

One or two said they advertised consistently the year round. Another sent his men on a house-to-house canvassing project.

The general practice, however, was to get prospects' names through building contractors and lumber yards.

### **Fan Installation Finds Favor Among Half of Furnace Installers Already**

The fan arrangement to force air through the warm air heating system, like the oil burner, has not been thoroughly brought before the installer. This is indicated by the response to the query in the questionnaire sent out by AMERICAN ARTISAN some time ago.

Of those who answered the question: "What has been your experience with fans?" 48 per cent stated that they had had no experience with fans. Another 50 per cent said that they were satisfactory in the service they rendered. One man said the fan was not needed where the installation was properly made, except in churches and other large buildings. Another man said the expense of running the fan was too great and the noise a source of annoyance, while on the other hand a third man claimed that the fan actually increased the life of a furnace.

## Harry Hussie Wants You to Do Your Share of Pushing Instead of Riding All the Time

*He Says Installer Has Himself to Blame Unless He Works with Others for Common Good*

**H**ARRY HUSSIE, Secretary of the Western Warm Air Furnace and Supply Association, writes:

In yielding to the temptation to write on a much discussed subject, I do not hope to bring forth anything new or startling, but rather to keep before those who should be interested, the fact that "George" is a very much overworked man and the spirit of "let George do it" is also much over-used.

I refer to the work being done by Manufacturers, Jobbers and Retailers for the advancement of warm air furnace interests and the betterment of furnace installation practice.

Now, it is admitted without argument that the good results obtained by the Research Work at the University of Illinois and other educational institutions and by the several associations, are available to and enjoyed by everyone connected with the furnace industry. The furnace business has made wonderful strides during the past ten years and it is scarcely possible that anyone believes that the warm air furnace would enjoy its present popularity, if nothing had been done to better methods of manufacture and installation.

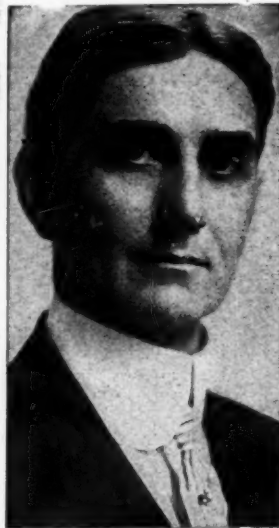
Everyone seems willing to admit these facts and the remarkable thing is that so many (Manufacturers, Jobbers and Dealers) appear willing to sit back and reap the benefit while doing little or nothing to assist.

I do not mean money altogether, for while financial backing of the educational project is necessary, moral backing is still more important.

When a retailer complains about unfair competition in his town, and of furniture stores or undertakers

selling furnaces by false and misleading advertising and cheap installations, I wonder if there is a local association in his town and, if not what effort he has made to organize one, or to have his town council pass an installation code. I wonder, also, if he installs according to the Standard Code and if his ads read "Furnaces Installed in Accordance with the Standard Furnace Code."

If not, what is he doing to better conditions and what right has he to



Harry Hussie

complain? I believe every installer in the country should advertise installations according to the Code and live up to his advertisement. If he doesn't, he is not backing up the work being done for him, as well as for others.

Then there is the man (Manufacturer, Jobber or Retailer) who can see no good in belonging to an association. What have associations done, he asks, and I answer, everything. Associations have done everything that has been done to improve conditions in the furnace industry.

The Research Work was made possible only through association

work, and wherever the Code has been enacted into a law, or put into practical use, it has been through the efforts of the associations.

Furthermore, hundreds of dealers have learned to turn their "tin-shop" into a modern business establishment, where cost, overhead and profit are known, only because they have joined their association and attended meetings.

Even then, the associations have only scratched the surface and accomplished only a little of what would be possible, if whole-hearted enthusiastic support were given by all those benefited by the work.

What are the reasons given by those who object to joining with their fellows, in association work?

One says they are too ethical and place too many restrictions on members, while the next man says they are not ethical enough, and fail to make his competitor walk the chalk line.

Very often a man says, "I will not join because John Doe or Richard Roe belongs. I wouldn't belong to any organization with him." Is that a good reason? Would this man resign from his fraternal organization because some man he did not like belonged? I think not.

When the success and advancement of the profession which we have adopted is in question, it seems to me to be good business not to allow personal likes or dislikes to sway us.

Now then, having gotten all of this out of my system, I feel much better and wish to say that I am not at all discouraged, but on the contrary, very much encouraged, by the progress thus far shown in Association and Research Work and write only in the kindest spirit, hoping that something I say may awaken the good-fellowship and association spirit that is in the heart of every man, and that during the coming years, we will all get behind the "Georges" who are doing the hard work. If we cannot get behind them with money, we can get behind them with our moral support and put their findings to practical use.

# Another Kind of Inventory Is Outlined by National President Markle of Sheet Metal Contractors

*What Have You Done to Make Conditions Better in Your Locality—For Yourself and Others?*

PRESIDENT W. C. Markle, of the National Association of Sheet Metal Contractors, sends the following message:

Father Time is ready to ring down the curtain on Nineteen-twenty-four. Are you ready?

To many of us the close of the year means taking inventory—taking account of stock.

Of course, insofar as this applies to our business, every Sheet Metal Contractor knows the importance of doing this and undoubtedly does it.

Is it not equally important to take stock of ourselves?

Have we measured up to the standards of business men which the community in which we operate has set up for us?

Have we used our influence to improve conditions in our neighborhood?

Have we extended a helping hand to a fellow Sheet Metal Contractor at a time when a kind word, a little advice or some practical information might have meant more to him than money?

These are questions which we should ask ourselves and, if we can answer "Yes," we are ready for the curtain to fall at the end of the year.

The year 1924 has gone down into history, and as we review it briefly, we realize that, during this year, greater progress has been made, more constructive work has been done and greater benefits have been secured for all Sheet Metal Contractors in this great country of ours, than during any previous year.

This has been accomplished by the splendid cooperation of the several associations which make up

the organized forces working in the interests of our craft.

At the Convention of the National Association of Sheet Metal Contractors, held at Washington, D. C., last June, a program of real activities was adopted which is being carried out by the several committees in such a way as to reflect



W. C. Markle

credit on the Association and bring lasting benefits to its members.

A booklet on Sheet Metal Cornices is almost ready for the press, which will be furnished to members of the Association for distribution to all Architects interested in sheet metal cornice construction. This booklet will show the best methods of construction together with specifications for fabricating and erecting metal cornices in accordance with the best shop practice known to the craft.

A course of studies for the training of Sheet Metal Apprentices is being prepared which will be furnished to any Local Sheet Metal Contractors' Association desirous of organizing classes for the train-

ing of apprentices. This will in no way interfere with classes now being conducted in several larger cities, but is intended, rather, to make it easier to organize and conduct classes in localities which have not as yet taken up this important work.

On October 14th conferences of manufacturers, jobbers and consumers of sheet steel, eaves trough, conductor pipes, etc., and terne plates were held at Atlantic City under the auspices of the Department of Commerce to consider the elimination of a number of gauges and sizes.

Our Association was represented at these conferences and our representative took an active part in the discussions which resulted in the recommendation to eliminate gauges lighter than 28 for roofing, eaves trough and conductor pipe.

These recommendations have been referred to the several parties interested, and, on acceptance, will be put into effect.

A "Standing Committee on Revision" has been appointed on which our Association is represented.

This is a decided step forward in an effort to raise the standard of sheet metal work.

On December 2nd the National Warm Air Heating and Ventilating Association dedicated the Research Residence at Urbana, Illinois. This building was erected in order that the Laboratory Research Work done by the University of Illinois could be checked up under conditions as they exist in the average home, and to test the efficiency of the various types of Warm Air Furnaces and equipment now on the market.



In the preparing of a "Standard Code" for the installation of Warm Air Furnaces the National Warm Air Heating and Ventilating Association has rendered a distinct service to the Furnace Installer and to the purchaser of Warm Air Heating Systems.

On December 4th and 5th the Western Warm Air Furnace & Supply Association held a convention at Chicago and a large part of their program was devoted to discussing methods of cooperating with the Sheet Metal Contractors handling and installing their products.

The Sheet Steel Manufacturers have organized a Sheet Steel Trade Extension Committee to create more and better business for producers and distributors, and greater efficiency and value for users of Sheet Steel.

These are some of the major activities in our industry during the past year made possible only through associations and cooperation.

Do you expect to derive any benefits from the work that has been done by these Associations?

If so, you must do your share of the work.

I want to urge on members of Sheet Metal Contractors' Associations the importance of attending the meetings of your Local Associations.

Reports of Committees are sent to the Secretaries and should be discussed at your meetings.

Give the Committees the support they ask of you. They are not asking you to do *their* work, but expect you to do *your share* to build up your own business and help place the Sheet Metal Industry on a basis which will command the respect of the public.

If you do not take advantage of the opportunities offered you through the activities of your Association, neither you, nor your Association, receive full value from your membership.

To the non-member Sheet Metal Contractor I want to extend an in-

itation to affiliate with the Local Association in your locality.

In extending this invitation I am confident that the benefits you will obtain from such membership will give you greater returns on your money than any other investment you can make, provided, of course, you take an active part in your Association when admitted to membership.

If there is no Local Association in your community, write to E. L. Seabrook, Secretary, 608 Chestnut Street, Philadelphia, who will gladly give you all the information required and will assist you to organize.

### *Make These Resolutions for 1925 and Keep Them*

**To give a part of our time to the upbuilding of our Association.**

**To learn to know our competitors a little better and hope to find them human after all.**

**To deal fairly with our customers and give them the benefit of our experience in selecting the best material for their needs.**

**To give service at all times, so we may deserve such measure of success as many come to us.**

Father Time may ring down the curtain on Nineteen-twenty-four. We are ready.

As the curtain rises on Nineteen-twenty-five let us resolve:

**To give a part of our time to the upbuilding of our Association.**

**To learn to know our competitors a little better and hope to find them human after all.**

**To deal fairly with our customers and give them the benefit of our experience in selecting the best material for their needs.**

**To give service, at all times, so we may deserve such**

measure of success as may come to us.

### *Milcor Starts Manufacturing Stove Pipe and Elbows*

Announcement has just been made to the trade of a new line of Milcor products — Stove Pipe, Stove Pipe Elbows and Warm Air Fittings. In the literature describing this new line, particular attention is directed to the "Milcor Lock" on the stove pipe and to the double riveting, top and bottom, on stove pipe elbows.

The lock runs the full length of the pipe seam and can be cut at any point without necessitating any riveting to insure a continuously tight seam. This lock permits convenient nesting of the pipe for shipment. Wire-bound boxes are used for shipping. Furnished in 26, 28, and 29 gauge "Uniform Blue" and in 30 and 28 gauge polished sheet steel.

Two types of stove pipe elbows are being made—Long End Adjustable and Corrugated. Both are furnished in "Uniform Blue" and in polished sheet steel. The adjustable type is made in 26 and 28 gauge, with 2½-inch ends and in 28 gauge with 4-inch ends. The one-piece corrugated type is made in 26, 28, and 30 gauge "Uniform Blue" and in 28 gauge polished.

The Milwaukee Corrugating Company is extending one of its buildings at Milwaukee 200 feet back, two stories high—an increase in floor space of over 100,000 square feet, to accommodate its stove pipe and elbow manufacturing equipment and to provide additional space for other lines, the demand for which caused production to outgrow present quarters during 1924.

In addition to stove pipe and elbows, Milcor will continue to manufacture furnace pipe and elbows and a full line of warm air fittings.

Organization is a fine thing, but after all, remember that the individual is the unit quantity without which there can be no organization.

## Secretary Seabrook Sees Wonderful Progress From First Furnace to Modern Types

*He Urges Installers to Study Standard Code and Follow It in All Installations*

SECRETARY SEABROOK of the National Association of Sheet Metal Contractors has been in the "game" so long and always has something helpful to say when he is talking, so the following will be read with interest.

There is a good story told of the Chesterfieldian charm of Jim Corbett when he wore the belt as the champion prize fighter of the world.

An admiring friend, marveling at Corbett's ways, said to him: "Jim, I think you are the politest man in the world."

Corbett's reply was: "I can afford to be polite; I have got the punch to back it up."

The warm air furnace has been in training for some time and can afford to be somewhat polite when attacked, because it has the punch to back up its claims.

It has been somewhat of a long, winding, torturous road from the amateur patterns of the first furnace to the most delicate testing instruments in the Research Residence. The first furnaces could hardly be based on any scientific investigation or tests, for there were none. Any less flexible and adaptable system would have broken down between these two points—the first patterns and the Research Residence.

It had the punch—which is only another term for merit—held on and won out. There are some wrecks along the way, but we are making the survey as a whole and are concerned greatly not with specific cases. The survey shows that the warm air furnace has held its own all along the line and was never counted out. This in spite of the heavy knocks that its supposed best friends have dealt it, sometimes occasionally, and oftentimes re-

peatedly. No other system of heating has ever been so tried and brow-beaten in the house of its friends. Yet, with all, it has been very polite about it, because it always had the punch to knock out its traducers in any fair test.

Let us frankly hope that the erstwhile friends of the warm air furnace have learned a lesson. Through all its abuses, it is coming, or shall we say, has come, into its own. If there is any kicking to be



Edwin L. Seabrook

done in the future, let it be toward the goal and not away from it.

A most remarkable tribute has been paid this system of heating. It has a residence all its own, which is more than any other heating system can boast. In its own home it can work in thoughtful meditation of the best way to serve those who live likewise—in a house. Here it can solve the problems under the very conditions that will arise in like situations all over the country. No other heating system in its entirety is being tested in the same conditions as it will be used when installed.

There is probably nothing like

this Residence in any other line of building construction. There are many laboratories where tests are being made. Some of these must necessarily be artificial, as they are not made under the same conditions as the system tested.

One of the specific reasons for the warm air furnace having the punch to back up its claims is the Standard Code, provided that it is used when putting the furnace in fighting trim. This Code has been compiled by the very best engineering talent in the furnace industry and applies only to the warm air furnace. Warm air furnace installers cannot be too insistent, not only in the use of the Code, but in its adoption by municipalities, and then to see that the proper authorities enforce it.

It is the exception for anyone to find fault with the plumbing and electrical requirements when these are installed. It is simply a case of becoming used to them and they are accepted as a matter of course. All opposition to a strict enforcement of practical and sensible warm air furnace installation codes would disappear in a very short time if their use became general, rather than exceptional.

In a certain sense the warm air furnace is a bundle of contradictions. The layman looking it over would conclude that very little skill was needed in its installation and any "handyman" could do it. For more than a generation the warm air furnace has been under-rated as to the skill required to lay out and install it. Parenthetically it might be remarked that some of the furnace manufacturers are waking up to the fact that the skill required to manufacture the warm air furnace has also been under-rated. Instead of requiring little or no skill to properly install the warm air furnace, it requires more than any other system.

But the warm air furnace is getting the lead and will have the punch to hold it.



## George Harms Puts It Straight to Installer as to His Own Opportunity and Duty

*Unless Installer, He Says, Does Real Aggressive Work in Selling He Will Lose Out*

**G**EORGE HARMS, who has been preaching good warm air heating work for 10, these many years, has something very pertinent to say on a phase of this subject which really is the most important factor, next to good installation, in the campaign to better the warm air furnace business.

Here is what he says:

### Do You Capitalize Your Opportunity?

It is no uncommon thing to hear remarks about good times ahead, or that prospects for business are fine. You hear these at nearly every gathering of Trades or Business Associations. The speakers generally have merchandise for sale and prosperity speakers are used to influence their audience to purchase their wares.

When business is good these exhortations of prosperity are scarce, but with every depression, more of these optimistic utterances are heard. Although many of these spellbinders have very little regard for the true conditions of the present or future, they often have the desired effect on many of their hearers. Many purchases are made as a result of their belief in the speakers' theories.

Although many orders are given and goods delivered into the store or warehouse, there to remain in obscurity and often covered with dust and dirt unfit to sell, this, in reality, is not the fault of the speaker and salesman, but of the purchaser.

The salesman has made good use of the opportunity to talk to his audience. Most of these have come to the meeting without any thought of buying; many have even stubbornly defended their pessimistic ideas of poor business and, much poorer prospects, some had abso-

lutely no need nor use for anything. *The fact remains, they all bought.*

What does this mean to the Sheet Metal Contractor? Let me tell you:

Through the combined efforts of National, State and Local Associations of Furnace Manufacturers and Sheet Metal Contractors, the use of *warm air* for heating homes, has been advertised and preached



George Harms

to millions of people. Better furnaces have been made, registers and furnace pipe have shown very marked improvements. The adoption of the Standard Code for furnace installation has assured perfect heating results. The public has heard and read about *warm air* and is in proper frame of mind to investigate and invest.

Are you capitalizing on the opportunity that has been prepared for you?

The ground is prepared for a big harvest. Dependable furnaces, registers and furnace pipe can be had at reasonable prices, scientifically correct methods of installations can be made according to the Standard

Code, you have positive argument in favor of *Warm Air Heating* and the public is ready to listen and buy.

It is now entirely up to you; if you merely sit down and await the public to stream into your store, you'll be disappointed, or if you think that it's enough to carry a stock in your warehouse and depend on the advertising and preaching that has been done in a general way, your furnaces will receive a good cover of dust and dirt, but your purchase will be an unprofitable investment.

Much time, thought and money has been spent to make *Warm Air Heating* the *Ideal System* for the American home.

Are you ready to cash in on the large amount of publicity that it has received?

This is your opportunity, capitalize it.

### Furnace Manufacturers Are Equally Divided on Financing Deferred Payment Sales

Furnace manufacturers are about equally divided toward helping installers finance deferred payment installation jobs.

A recent questionnaire sent out by AMERICAN ARTISAN asking the question: "Do you assist your installers in financing deferred payment sales?" revealed the fact that about 50 per cent do assist their installers, while the other 50 per cent do not.

Commenting on the situation created by allowing the installer to work on the basis of deferred payments, one manufacturer said that he did not believe in making the extra extension of credit necessary. What he did, however, was to encourage the installer to discount his paper at the bank in his own town.

Most of the others who negatived the question made no comment as to why they did not finance the installer. There are good arguments in defense of both those who do and who do not.



## Harry Van Bayse Makes Some Pertinent Remarks in His Characteristic Way

### Installer Must Do His Share in Convincing Public of Merit of Warm Air Furnaces

THE writer's thirty-six years of experience in manufacturing and selling Warm Air Furnaces, and laboring faithfully during that time for the elevation of the business, has undoubtedly contributed in a measure to, if I may say, what is left of the good public opinion of Warm Air Heating. Unfortunately, I find that where one man is trying to build up the good name of the system, there are a dozen or more working on such principles as to destroy it; some thoughtlessly and some because they don't care. I have stated it in this way on some occasions that, "Some people take your money with a six shooter and some of the same type of humanity use a hot air furnace," having in mind cases where a dealer was selling the cheapest furnace he could find, taking air and dirt from the basement and using very small, all one-size heating pipes and registers, disregarding all codes or thought of good or better installation and recommending it to be the best.

Now, Mr. Dealer, The University of Illinois, jointly with the National Warm Air Heating & Ventilating Association, have been for the past several years thrashing out the good and showing how best to eliminate the bad in warm air heating, that is to say, the system is having a most thorough combing through the Laboratories of the University's Engineering Department. No system of heating has had a more thorough study by such able authorities and the good work is still going on, working out and making it possible for the furnace industry in general to "come back" and "stay back," as the best system of heating for the better class of homes.

But the dealer must realize fully that no matter how much we learn from the good results of the uni-

versity work, the real demonstration to the public is in the manner in which they receive it, that is to say the public will judge the warm air furnace by just what it does in their own basement; hence each dealer should select a high grade furnace, secure a copy of the Standard Code and install the furnace accordingly. The Code in a meas-



Harry Van Bayse

ure is the result of the Research Work of the University, the manner in which it is handed to the dealer. Right now is the time to fight the cheap furnace and the unscrupulous furnace installer like you would fight snakes and never stop until you have cleaned them out.

If you have been a piker in the business, I mean the manufacturer as well as the installer, now is a good time to stop. The piker surely is not proud of the fact that he is one, not even proud to think possibly others think he is such. Right now is the time to change, so that you will be proud of yourself, and have your family, your neighbors and your community think better of you as a dependable heating man.

*Right now make New Year resolutions like these:—*

"I will at least offer furnaces for sale like the piano men offer their wares, all furnaces are guaranteed to heat and all pianos are guaranteed to make music, but I would rather sell you something dependable.

"I will not install the furnaces in a 'slap stick fashion.' I would advise that you pay for a real high class installation.

"I will keep off the 'fly by night' furnaces that perhaps may be off the market when I need repairs for my customers a few years later, as they are coming and going all the time.

"I will get a 'Standard Code' from the National Warm Air Heating & Ventilating Association and get acquainted with it and start climbing to where my customers will recommend me to their friends and have my customers become my solicitors and not my knockers and become the dealer to replace the other fellow's faulty, cheap installation, as I well know that the dealer who installs the cheap work is never called back for something good.

"I will be happy ever after."

I find it easy to go downhill, but hard to get back up, much easier to stay on the level, I mean your reputation. You only have one reputation; better take care of it.

### Furnace Manufacturers in Favor of Automatic Regulators for Oil Burners

Furnace manufacturers are almost unanimous in their opinion that oil-burning devices should be equipped with automatic regulators.

A questionnaire sent out to furnace manufacturers recently by AMERICAN ARTISAN, asking the question: "Should oil-burning devices be equipped with automatic regulators?" revealed the unmistakable attitude of manufacturers in favor of regulators.

Taking the total number who returned the questionnaire as 100 per cent, we found 77.7 per cent replying that an automatic regulator is necessary.

## More Real Salesmanship Is Needed in Furnace Business, Says Cooper

*the Job and Bad Repute for Installer  
Underpricing Always Means Skimping of*

**M**ORE real salesmanship and less sharpening of pencils for the purpose of price shaving—more regard for the idea of real service rendering and less of the notion that underselling is necessary to land the contract, is the message of W. A. Cooper, of the Globe Stove & Range Company, to the installers, in his article which follows:

### Salesmanship in Furnace Business

Ralph Waldo Emerson said something like this, "But make a better mouse trap than your neighbor and the world will make a beaten path to your door."

Mr. Emerson was right. So it is today with every modern business enterprise. And the furnace dealer who is installing *good* furnaces *well* and going the mouse trap man one better by putting the better grade of ginger into his business, is paving the way for a constantly growing patronage, a healthy growth, the kind of business that sticks through thick and thin, the kind that he can bank on from one year to the next.

Fundamentally, furnace selling and installing is no different from any other modern business. Regardless of the line of endeavor, whether it be the building and selling of steam ships, alarm clocks or furnaces, there is always that element constantly striving to *under-price*—attempting to dominate the market by making their bid for patronage solely upon a *low price* appeal, leaving *service* entirely out of the question. In so doing, they sacrifice their prestige as manufacturers and dealers, thus endangering their future success.

Such a business of quick earning is built upon the "get the money" principle. Get it while the "getting" is good, and let the future take care of itself!

It is doubtful if ever a successful business has been built upon

the *underselling* idea, where underselling has made necessary the cutting of corners, undersizing, the lick-and-a-promise class of workmanship. It is doubtful if ever such a business has prospered over a period of time, through lean and fat years. It may outshine all rivals in its community for a time, only to find that its life has been a fruitless one—with no seeds sown for the future.

We cannot pass the buck to the public. Often the remark has been made, "What do I care! I know it isn't the right kind of a job—wouldn't have it in my own home under any consideration, but that is the kind of a job he wants and I am going to give it to him. If I don't someone else will." So it goes. He may be a builder operating a project representing a great outlay in capital. He may be an individual, building for his own home with a distorted idea of the heating system's relationship to his future satisfaction, health and happiness. He may say that he wants just that kind of a job.

For the sake of the future success of the furnace dealer and furnace manufacturer, the Public should be *sold* what it *ought to have* and not what it sometimes thinks it wants. Enter *Salesmanship*. No successful enterprise can be operated without it. Salesmanship in some form, plays a leading role in every business success.

How fickle the Public is, sometimes. The man who said, "Never mind that, put the furnace in as cheaply as possible"—never taking accepts his share of the responsibility when the heating system demonstrates its shortcomings. It is the furnace dealer and the furnace manufacturer who take the jolt in the short ribs. It is the dealer and the manufacturer who must bear the brunt of the attack. The Public

was wrong in sanctioning the underpriced, lick-and-a-promise installation, but the major portion of the blame is deservedly placed on record against the dealer and manufacturer.

There is an old green-eyed dragon constantly bellowing in our ears, "Undersell 'em. Undersell 'em. Go your competitor one better. Get something cheaper, much cheaper. Cut the corners! What do you care, if the buyer doesn't! Get the *volume* and *turnover*. That's all there is to business, anyway. Take chances. What do you care for the consequences! Get it while the getting is good."

The green-eyed dragon is the enemy of Salesmanship. It straight-arms good old reliable Salesmanship right off the scene. It says to our time-tried friend, "What are you good for? You're a 'has been.' My boss and I don't need you any more. We knock 'em dead, we do. We just quote prices that leave our competitors gasping for breath. *Volume—turnover*—that's what we want. Nothing else counts. You're a dead one."

*Wanted*—A Champion, a Champion for real constructive salesmanship in furnace business. A Champion who has the stuff in him and will buckle on his gas mask and edge right up to the port side of the old green-eyed dragon and, between snorts, sock the harpoon right into his liver and lights and let all of the gas out of his tank.

Furnace business, for the sake of all who are in it, needs good old-fashioned salesmanship to win for it enduring success for both dealer and manufacturer and thereby continue to hold the confidence and good will of the buying public.

Give me the man who can hold on when others let go; who pushes ahead when others turn back; who stiffens up when others retreat; who knows no such word as "can't" or "give up"; and I will show you a man who will win the end, no matter who opposes him, no matter what obstacles confront him.—Marden.



# Revised Standard Code Regulating Installation of Warm Air Furnaces in Residences

*This Code Has Been Approved by Principal Organizations in Warm Air Heating Field*

THE Third Edition of the Standard Code Regulating the Installation of Warm Air Furnaces in Residences contains several changes from the original, these changes being made because of experiences in actual practice.

In order, therefore, that all our subscribers may have the correct text we publish herewith the revised Code, which has been approved by the National Warm Air Heating and Ventilating Association, the American Society of Heating and Ventilating, the National Association of Sheet Metal Contractors, the Western Warm Air Furnace and Supply Association and the Midland Club, the five principal bodies of manufacturers, supply houses and installers.

## Outline

- Article 1—Meaning of Terms.
- Article 2—Provisions in Building.
  - Section 1—Construction.
  - Section 2—Chimneys.
- Article 3—Formulæ.
- Article 4—Installation.
  - Section 1—Location of Furnaces.
  - Section 2—Foundation.
  - Section 3—Setting Furnace.
  - Section 4—Casings—
    - a. Portable.
    - b. Brick Set.
  - Section 5—Basement Pipes.
  - Section 6—Wall Stacks—
    - a. Single.
    - b. Double.
  - Section 7—Registers.
  - Section 8—Air Supply.
  - Section 9—Smoke Pipe.
  - Section 10—Pipeless.

## Article 1

*Meaning of the Term "Warm Air Furnace Heating Plant."*

Warm air furnace heating plants, to which this code refers, shall consist of one or more warm air furnaces, enclosed within casings, together with necessary appurtenances thereto, consisting of warm

air pipes and fittings, cold air or recirculating pipes, boxes and fittings, registers, borders and face plates, the same being intended for heating buildings in which they may be installed.

## Article 2

*Provisions to Be Made in Building under Construction for Reception of Warm Air Furnace Heating Plants.*

Section 1. (a) The following provisions shall be made by the owner or building contractor, in any building wherein a warm air heating plant is to be installed.

(b) Where warm air register boxes, heads, pipes or stacks are to be installed, joists shall be set not less than sixteen inches (16") on centers and shall be butted and not lapped. Studding shall set directly over and under joists, leaving a space of not less than fourteen inches (14") between studs and joists. Wherever joists are cut, headers must be put in to support joists.

(c) All first story single or sub-floors shall be continuous. In all houses having studded exterior walls, these floors shall be extended to the outside sheathing and all spaces between studding shall be closed at the attic line.

*Note 1. It is strongly recommended that the attic be tightly floored to reduce heat losses.*

(d) All partition walls (or sections of these walls) in which heat stacks to second floor rooms are to be installed, shall be built of six inch (6") studding to second story floor joists.

## Chimneys.

Section 2. (a) The owner shall provide a chimney for the furnace constructed in a manner to comply with the following specifications:

(b) The chimney must be absolutely smoke tight throughout its entire length, and must extend at least three feet (3') above a flat

roof or two feet above the ridges of peak roofs.

(c) If built of a single thickness of brick or of cement blocks, it shall be lined throughout its entire length with fire clay flue lining, having not less than three-fourths inch ( $\frac{3}{4}$ ") thickness. Flue lining to be laid in mortar and made air tight.

(d) The furnace flue must have no other opening for attaching any fireplace, furnace, stove, range, water heater, gas or ventilating connection.

(e) If necessary to offset the flue, it must be done in such a manner as not to reduce the cross sectional area nor create a ledge or obstruction, where loose material may lodge.

(f) Its narrowest internal dimension shall not be less than eight inches (8") and no flue smaller than 8" by 8" rectangular or eight inch (8") diameter round will be considered suitable when hard coal is to be burned, or 8" by 12" rectangular or ten inch (10") round for soft coal or wood.

(g) It is strongly recommended that nothing less than 8" by 12" internal dimensions be used in any case.

*Note 2. It is recommended that the height above the furnace grate be not less than twenty-six (26) feet.*

*Note 3. It is strongly recommended that all new chimneys be built in strict accordance with the ordinance recommended by the National Board of Fire Underwriters.*

## Article 3

*Method for Determining Size of Warm Air Pipes, Wall Stacks and Furnaces*

Method of determining size of basement warm air pipes.

(Read Explanatory Notes 4 to 11.)

Section 1. First Floor Rooms.

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.

Divide cubic contents by 800.



Add together the above and multiply by 9.

The result is the area of the basement pipe.

$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \quad + 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \quad + 800 \end{array} \right\} \times 9$$

=Area of Basement Pipe (Note 10).

## Section 2. Second Floor Rooms.

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.

Divide cubic contents by 800.

Add together the above and multiply by 6.

The result is the area of the basement pipe.

$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \quad + 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \quad + 800 \end{array} \right\} \times 6$$

=Area of Basement Pipe (Note 10).

## Section 3. Third Floor Rooms.

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.

Divide cubic contents by 800.

Add together the above and multiply by 5.

The result is the area of the basement pipe.

$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \quad + 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \quad + 800 \end{array} \right\} \times 5$$

=Area of Basement Pipe (Note 10).

Method of determining size of wall stacks.

Section 4. First Floor Rooms. Same as Section 1.

Section 5. Second Floor Rooms. Deduct 30 per cent from basement pipe area determined in Section 2.

Section 6. Third Floor Rooms. Deduct 30 per cent from basement pipe area determined in Section 3.

### Explanatory Notes.

Note 4. In obtaining glass surface use full casement opening. An outside door is figured as glass.

Note 5. To obtain net outside wall multiply height by width and deduct the glass in all windows and outside doors.

Note 6. For rooms having unusual exposure, ordinarily north, northeast and northwest, add 15 per cent to pipe area. For east and west exposure, add 10 per cent.

Note 7. For cold ceilings, add one-half net area of ceiling to net exposed wall (cold ceilings are those next to unfloored attics.)

Note 8. Use no warm air pipe less than 8 inches in diameter. If a basement warm air pipe figures greater area than any standard commercial size then the next larger size shall be used.

Note 9. It is understood in using the above values for determining basement warm air pipe areas, that these pipes should be run comparatively straight and that they should not be over 10 to

12 feet in length. Sharp turns and long pipes should have extra capacity.

Note 10. These formulae are for 70 degrees inside temperature with zero temperature outside. For a temperature of 10 degrees below zero, add 10 per cent to the capacity of each pipe.

Note 11. The value of 800 (used in cubic contents) is for an estimated air change of one room volume per hour. If it is desired to provide for 1½ room volume use the figure 600. If for 2 room volumes use the figure 400. "The factors 9, 6 and 5 in sections 1, 2 and 3, are calculated for a register air temperature of 175 degrees."

### Transition Fittings and Stacks.

Section 7. Transition from warm air pipes to stacks shall be made with a well designed elbow or boot and no stack shall be less than 70 per cent of the warm air pipe area.

Method of Determining Size of Registers.

Section 8. All registers shall have a free area at least equal to the calculated area of the basement pipe.

Method of Determining Size of Furnace.

Section 9. Add together the actual warm air pipe areas in sq. in. as obtained in Sections 1, 2 and 3, and select a furnace having a free area not less than the sum of all the warm air pipe areas.

### Article 4

#### Installation and Location of Furnace.

Section 1. The location of the furnace shall equalize the length of warm air runs as far as possible, yet give necessary preference to pipes supplying living rooms, dining rooms and main halls.

#### Foundation.

Section 2. Furnace foundation of brick, cement, or other incombustible material must be provided. Said foundation to extend at least fifteen inches (15") at rear and sides of furnace casing and at least thirty-six inches (36") in front of furnace casing. Foundation to be level.

#### Setting or Assembling of Furnace.

Section 3. (a) The base ring of the furnace shall be cemented to the foundation, making an air tight joint. The furnace parts shall be assembled plumb and level, and in a workmanlike manner. (b) All sections and joints shall be properly fitted. Joints requiring cement shall be well filled and all bolts shall be drawn up tightly.

#### Casings.

Section 4. (a) Warm Air Furnaces shall be enclosed in metal

casings or walls of brick, tile or concrete.

(b) Portable. Sheet metal casings including casing tops shall be made of galvanized sheets, not lighter than 26-U. S. Standard Gauge. They shall fit the castings and casing rings closely, so as to be dust tight, and shall be securely fastened to the front. The casing shall be lined from the upper casing ring down to a line on a level with the grate.

(c) When side collars are used the casing top must be of sufficient height so that the largest warm air pipe can be taken from side without ovaling. In no case shall a distance less than eight inches (8") be maintained between the top of any furnace and the top of casing or bonnet.

(d) Any furnace, the casing top of which shall come within sixteen inches (16") of a combustible floor, ceiling or joist, shall be protected by a metal shield, extending not less than eighteen inches (18") beyond the casing of said furnace. This shield shall be suspended at least two inches below woodwork, allowing free air space between shield and woodwork. No furnace casing or top, coming nearer than six inches (6") of ceiling or joists shall be allowed in any case.

(e) Openings for side casing collars shall be cut into the casing top, so that the tops of all openings are on a level. Casing collars shall be fitted into place with a proper flange, or bead on the outside and drawn up on the inside, making a dust-tight joint. All collars shall be of same size as the warm air pipes to which they are to be connected.

(f) Brick set, cement or hollow tile casings shall be constructed as follows: Walls shall be not less than eight inches (8") in thickness, and shall be constructed air tight. Rectangular casing shall be, with least inside dimensions, the same as that of the portable casing of a corresponding size of the furnace. Walls shall be carried to the same height as the portable walls, allowing not less than eight inches (8")

between the top of the furnace and the bottom of the top cover. After placing the collars for the warm air pipes, continue the masonry up even with the top of the collars, lay spacing rods of bar iron on edge or angle irons across the furnace top, cover these with sheet iron, cover the sheet iron with masonry and run the side walls four inches (4") above the masonry bed. A galvanized iron casing bonnet may be used on brick set furnaces.

Provision shall be made in the walls for a manhole to give ingress to heater.

#### *Warm Air Pipes in Basement.*

Section 5. (a) All warm air pipes shall be made of bright tin not lighter than IC, or galvanized iron. Side seams shall be locked seams. All joints shall be either double seamed or lapped not less than one and one-quarter inches (1¼") and such joints shall be beaded and soldered or riveted. All pipes shall be properly secured to ceiling or joist. No solder or riveted joint is required where round pipe slips over the casing collar. Any pipe twelve inches (12") or greater in diameter shall not be made of material lighter than IX tin or Number 26 U. S. Standard Gauge galvanized iron.

*Note 12. It is recommended that all warm air pipes in the basement shall have an upward pitch of not less than one (1) inch per running foot.*

(b) No warm air pipe shall run within one inch (1") of any woodwork unless such woodwork is covered with asbestos paper and the paper covered with tin or iron.

(c) All warm air pipes in the basement shall be provided with dampers not more than two feet from the casing.

(d) Where warm air pipes pass through a masonry wall, a metal thimble shall be provided, having a diameter at least 1 inch greater than the pipe, and pipe supported in such a manner that the air space is uniform on all sides.

#### *Wall Stacks.*

Section 6. (a) Single Stacks. All single wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of

bright tin or galvanized iron and shall be covered with not less than one thickness of 12 lbs. per one hundred (100) square feet of asbestos paper. All studding and other woodwork facing said pipe shall be lined with metal and metal lath used in place of wood lath. An air space of not less than three-eighths (¾") of an inch shall be allowed on the two sides nearest the vertical studs. All such pipes shall be braced in a proper manner so as not to obstruct the flow of air but to retain the full capacity throughout. All joints shall be locked and held in place by means of lugs, or straps. No joint shall depend wholly upon solder to make it tight.

(b) Double Stacks. All double wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin, not lighter than IC or galvanized iron and shall be made double, from and including the boot or foot piece in basement to the top of each and every stack and register head on all floors. There shall be continuous uniform air space of not less than five-sixteenths (5/16") of an inch, which must be maintained between the outer and inner walls of all such pipes and fittings of all kinds, styles and descriptions; such pipes, heads, boots and other fittings to be of the styles, or equal to those accepted by the National Board of Fire Underwriters.

All pipes and fittings either single or double must be secured firmly in place by lugs or straps attached to the outer walls of stacks and fittings, and no nails shall be driven through these stacks or fittings at any point. No wall pipes or fittings shall be used which depend wholly on soldered joints. The various members shall be so made that all joints are locked and soldered and the several members shall be attached to each other with slip joints, which are, for the purpose intended, air tight.

#### *Registers.*

Section 7. (a) When baseboard or wall registers are used, they shall be properly and permanently attached to the stack head in such a

manner that will prevent any leakage of air between the head and the register.

(b) Floor registers shall be provided either with register borders, or double register boxes of tin or galvanized iron with an air space of not less than five-sixteenths (5/16") of an inch between inner and outer boxes.

(c) Registers for warm air and warm air pipes shall not be located in outside walls. The warm air registers in the various rooms shall be located in or near the inside walls in all cases.

#### *Air Supply to Furnace.*

Section 8. (a) The air supply to furnace for warm air heating plants may be taken from outside or from within the building or may be taken partially from outside and partially from within. In no case, however, shall air be supplied to any furnace from any basement or furnace room.

(b) The cold air intake or return where air is taken from within the building shall have a net area throughout its entire length of not less than the combined net area of all warm air pipes leading from the furnace. This may be maintained in one or more ducts.

(c) When the cold air supply is taken wholly from the outside of the building the supply duct at its most contracted area must equal or exceed eighty (80%) per cent of the combined area of all warm air pipes leading from the furnace.

(d) Cold air ducts shall be constructed of metal, tile or other incombustible material having smooth inner surface and shall maintain a constant net area throughout their entire length and shall be made air tight. Where a boot or shoe is connected to the casing at the base, the opening shall not extend higher than a line on the level of the grate of the furnace. The width of the shoe shall be of proper measurement to make the area at least equal to that of the round or square pipe to which it is connected.

(e) Wherever the space between joists is used to convey cold air overhead, the joists and all wooden



surfaces between such joists shall be lined with metal and a sheet metal pan constructed to extend not less than six (6") inches below said joists. The connection from this plan to the boot or shoe shall be made of galvanized iron not lighter than Number 26 U. S. Standard Gauge, and shall have a transition collar, the top area of which shall be at least 10% greater than the area of the connecting pipe.

(d) The cold air face or faces shall be made of wood or metal. When set in floors the top of same shall be flush with floor. Where cold air face is placed in a seat or side wall (whether furnished by owner, general contractor or furnace contractor) the open work of face must extend to within at least one (1") inch of the floor line.

The free area of cold air faces shall be at least 10% in excess of the free area of the duct or ducts to which they are connected.

*Note 13. The effective area of a vertical cold air face lies within twelve (12) inches of the floor line, hence, the capacity of any vertical cold air face shall be determined by multiplying the base line in inches by not to exceed twelve (12) inches in height and deducting for the grills or cross bars.*

#### *Smoke Pipes.*

Section 9. (a) The smoke pipe shall be as short and direct as consistent with the location of the furnace. It shall be made of either black or galvanized iron not lighter than Number 24 U. S. Standard Gauge, and of the full size of the collar on the furnace throughout its entire length. It must have no other opening for attaching any fire place, stove, range, water heater, gas or ventilating connection. It shall be lock seamed or riveted; all joints shall lap not less than one and one-half (1½") inches and it shall be rigidly secured. Cast iron smoke pipe may be used.

(b) Where the smoke pipe enters the flue, a thimble shall be cemented into the flue and the connections thereto made air tight. Should any smoke pipe come within eighteen (18") inches of any combustible material, such combustible material must be covered with asbestos paper and a metal shield so fastened that a two inch air

space exists between this shield and the combustible material. This shield shall be no less in size than twice the diameter of the smoke pipe and of sufficient length to cover the wood at all points.

(c) No smoke pipe shall project through any external wall or window.

#### *Pipeless or One Pipe Furnaces.*

Section 10. (a) When but one duplex grating is used for both warm air and cold air in a so-called pipeless furnace, the area of the cold air intake shall be at least equal to the area of the warm air outlet of the grating. Article 4, Section 4, relative to casing shall not govern this type of furnace is installed, but the following specification shall be followed: The inner and outer casing of this type of furnace may be made of either

black or galvanized iron not lighter than Number 26 U. S. Standard Gauge. A uniform air space shall be maintained at all points between the inner and outer casing. In no case shall the top of the furnace be allowed closer than twelve (12") inches to any ceiling or joists above the furnace.

Where joists are cut to accommodate this furnace, headers shall be put in and braced so as not to weaken the structure of the floor above the furnace.

(c) Article 3 for determining area of warm air pipe shall not govern in figuring a pipeless furnace.

(d) Where one warm air register face is used and separate face or faces for cold air supply are used, then Article 4, Sections 5 and 8 shall apply.

## **Warm Air Heating Campaign Depends on Installer**

*Dependable Installations, Based on Standard Code, Are Basis for Public's Approval*

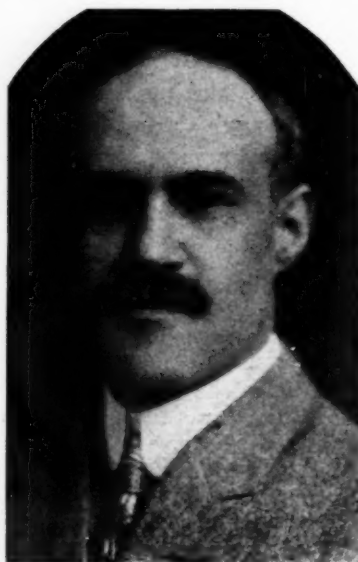
**E.** C. FOX has been identified with the furnace industry for over forty years, both as a manufacturer of furnaces and registers, and has always been among those to whom the progress in this field is due. What he says about the research work at Urbana and the relation of the installer thereto

is of more than ordinary interest:

Nineteen hundred and twenty-four is easily the red letter year of the warm air heating industry. Real progress toward better furnace installations has been made during this year. The evidence is the gradual adoption of the Standard Code by furnace men and the completion and dedication early in December of the Warm Air Heating Research Residence.

The dedication of this building carries with it great possibilities for Warm Air Heating, for through it the way will be shown to better and more efficient furnace installations, and it also carries a wonderful opportunity for publicity for the Warm Air Heating Industry.

The interest shown by both installers and manufacturers of furnaces, in this building, and the experimental work which is to be carried out in it, is a hopeful sign, as no real success in better warm air heating can come without the installer's sincere coöperation.



**E. C. Fox**



## Joint Code Committee Submits Suggestion for Architect's Specification on Furnace Work

### Companion Piece for Standard Code Regulating Installation of Warm Air Furnaces in Residences

THE following suggestion for a Standard Specification for architects covering work in connection with the installation of warm air furnaces has been prepared by the Joint Code Committee through the efforts of which the Standard Code has become a reality.

The Chairman of that Committee is Professor J. D. Hoffman, of Purdue University.

#### The Owner's Responsibility

The owner shall obtain all necessary permits for the contractor to carry on the work. He shall see that no unnecessary restrictions interfere with the progress of the work and shall make payments promptly at times agreed upon. The owner reserves the right to reject any or all bids.

The owner or the general contractor shall do all cutting for pipes and registers, the same to be located by the heating contractor.

#### The Heating Contractor's Responsibility

The heating contractor will refer all doubtful questions or misunderstandings, if any, to the owner for agreement and in case of disagreement then to a committee including the owner, the architect and the heating contractor, whose decision shall be final. Interpretation upon any point in question shall be obtained before proceeding with the work.

The heating contractor shall lay out his own work and be responsible for its fitting to place. He shall keep a competent foreman on the grounds when necessary and shall properly protect his work at all times, making good any damage that may come to it, or to the building, or to the work of other contractors from any source whatsoever, which may be chargeable to himself or to his employees in the course of their operations.

The heating contractor, and his sub-contractors if any, shall at all times co-operate with each other and with the contractors who may be employed by the owner or architect on the work. He shall install his material so as to meet the general convenience of all trades employed in the construction of the building, and shall so time the delivery of materials and conduct his



Professor J. D. Hoffman

work in a manner so as not to cause delays or interfere with other contractors in the performance of their obligations.

No change in these plans and specifications will be allowed except upon written agreement signed by both the heating contractor and owner.

These specifications with the accompanying plans and details (sheet ..... to ..... inclusive) cover the purchase of all the materials as specified later (the same materials to be new in every case) and the installation of the same in a first class manner within the above named building, located at ..... (street) ..... (city) ..... (state).

The heating contractor shall work in conformity with these plans and specifications and shall carry out their true intent and meaning. He shall in every detail install the heating system in accordance with the Standard Code Regulating the Installation of Warm Air Furnaces.

NOTE: Copies of this Code may be obtained by writing the Secretary of the National Warm Air Heating and Ventilating Association, Columbus, Ohio.

Furnace: The Furnace to be used on this job shall be.....

Liability: The heating contractor will be required to carry insurance covering the liability imposed by the Employers' Liability Law and Compulsory Compensation Act, whenever this shall be required by any state law.

The heating contractor hereby assumes a guarantee to heat each room to an average temperature of 70 degrees Fahrenheit, when the mercury on the outside is at zero, provided the user follows the directions for operating the furnace, and provided the heater is connected to a chimney of proper construction and capacity.

### Installers Not Favorably Impressed With Oil Burners So Far

It is very evident that oil burners of any type or construction have not as yet made any great progress in winning favor from the warm air furnace installers.

In the early fall AMERICAN ARTISAN sent out questionnaires to representative furnace installers. One of the questions asked was, "Do you know of any oil burners that work satisfactorily?"

There were only 4.4 per cent of the total replies in the affirmative.

The replies were highly elucidative. Out of these only one or two gave the name of the burner.

Ninety-five and six-tenths per cent of the replies were in the negative, some merely answering "No," while others stated that they had not seen any that worked satisfactorily.

# Professor Willard Finds Six Pertinent Factors Which Affect Rating of Warm Air Furnaces

*Says Furnace Must Be Tested Under Conditions Identical With Those Existing in the Dwelling*

**I**N the discussion which follows A. C. Willard, Professor, Heating and Ventilation and Head of Department of Mechanical Engineering in the College of Engineering at the University of Illinois, Urbana, Illinois, has set forth the steps necessary to properly rate a warm air furnace.

## Factors Affecting Rating

There is only one correct way to determine the rating of a warm air furnace and that way is to test the furnace under the same conditions as will actually exist when it is installed in a house. This means that the same fuel, chimney, cold air duct, casing, leader, stack and register system and air temperatures should be used in the test as in the actual installation. Such a proposal sounds almost absurd, as it is equivalent to saying that the rating of a furnace must be determined for each installation, since seldom are there two furnace heating jobs which are exactly alike.

Nevertheless, each and every one of the factors just named affects the rating of any given furnace, and for purposes of emphasis they are presented in amplified form in the following list:

- (1) Fuel, which may be solid, liquid, or gas.
- (2) Chimney and smoke connection, which determines draft available.
- (3) Cold air duct, which may have single or multiple connections, and supply either inside or outside air.
- (4) Casing, which may be large or small in diameter, lined or unlined, and with a variety of bonnets.
- (5) Leaders, stacks and registers, which may comprise a long or short system, running to first, second and third floor, or to only one floor.

(6) Temperature of the air entering cold air face and leaving warm air registers. This item also controls the rate at which fuel must be burned, and hence the draft required of the chimney.

Willard Warm Air Special Contd..

Such items as insulation of casing, leaders and stacks are not in-

clude it possible to predict the effect of most of the given factors. The results of the past five years of research work show that none of the six factors can be ignored when determining the rating of a furnace, although some factors are more important than others.

## A Tentative Method for Rating a Gravity Warm-Air Furnace

In response to many inquiries for an approximate method of computing the rating of a warm-air furnace, the following procedure has been outlined, based on the results of the warm air furnace research work to date as reported by the Engineering Experiment Station of the University of Illinois in Bulletins 112, 117, 120 and 141, most of the necessary data being contained in the latter bulletin:

(1) Fuel was stove size anthracite coal of 12,790 B. t. u. heat value per pound as fired.

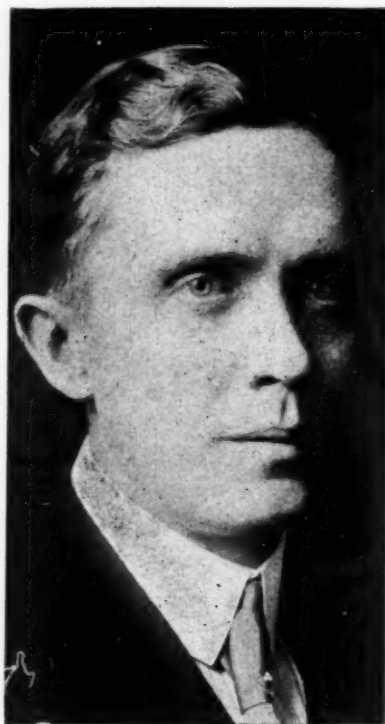
(2) Chimney was 12 inches diameter and 35 feet high, and was ample to create the draft necessary to burn 7.5 pounds coal per square foot of grate per hour. As a matter of fact, on some tests, this chimney did burn over 13 pounds of coal per square foot of grate per hour.

(3) Cold air duct was of the re-circulating type with large flat shoe and a single register at first floor level, as shown in Bulletin 141.

(4) Casing was of best diameter for each furnace tested, with a black iron liner and 1 inch air space. The bonnet was conical, all as shown in Bulletin 141.

(5) Leaders, stacks and registers supplied air to three floor levels as shown in Bulletin 141.

(6) Temperature of air entering cold air duct was reduced to 65 degrees F., and air leaving reg-



Professor A. C. Willard

cluded, since they can be made the same for all systems.

Realizing the truth of the statements in the preceding paragraphs, the National Warm Air Heating and Ventilating Association started out about five years ago to determine the importance and effect of the various factors just listed on the performance of a warm air furnace when operating under practically actual installation conditions. Working under a coöperative agreement with the University of Illinois, the Furnace Research Staff of the Engineering Experiment Station of the university has secured and published data which



isters was at an average temperature of 175 degrees F.

Attention is especially directed to the comments on the six factors affecting furnace rating as they existed in the testing plant.

The present practice of rating furnaces in square inches of leader pipe area is as practical as any method so far devised, and will be followed in this discussion.

Probably the most important of the six factors affecting the rating of a given furnace is the air temperature at the registers, and this must be agreed on in advance before any discussion of ratings can be undertaken. We have suggested above, in item 6, that the air temperature be approximately 175 degrees F. at the registers when the furnace is operating at maximum capacity. By actual test, we have found that the combustion rate required to maintain an average temperature of 175 degrees F. at the registers is about 7.5 pounds of good coal per square foot of grate per hour. Such coal should have a heat value of at least 12,000 B. t. u. per pound. Coal used in our tests runs 12,790 B. t. u. per pound as fired.

Hence, the rating of a furnace such as those which we have tested in our laboratory can be roughly expressed as follows:

Heat available in (1)

B. t. u. per hour  
at the furnace  
bonnet =  $H_b = G \times C \times F \times E$

in which,

$G$  = grate area, square feet.

$C$  = combustion rate, pound coal burned per square foot of grate per hour, which depends on register temperature desired, and for 175 degrees is approximately 7.5 pounds.

$F$  = calorific value of fuel, B. t. u. per pound as fired.

$E$  = efficiency of heater, or ratio of heat available at bonnet to heat available in fuel.

Since it is not possible to transmit all of this heat to the registers, due to leader and stack losses, and we can expect to get only about 75 per cent of the above heat delivered

into the rooms of the house, we have as a general expression for heat available at registers:

Heat available in (2)

B. t. u. per hour  
at the Registers

=  $H_r$  or  $H_r = 0.75 \times H_b$

Note that the figure 0.75 is suggested as an average value only. In the test plant, the actual value when burning coal at a 7.5 pound combustion rate was 0.722 instead of 0.75.

#### The Rating Formula, Giving Capacity in Square Inches of Leader Pipe

The average heat carrying capacity per square inch of leader pipe to first and second floor is about 136 B. t. u. per hour at a register temperature of 175 degrees F. Hence the rating of a furnace in square inches of leader pipe would be:

Rating in square inch (3)

of leader pipe =  
$$\frac{H_r}{136} = \frac{0.75(G \times C \times F \times E)}{136}$$

It should be noted that the value 136 will not hold for a bungalow installation where all registers are on first floor. In such a case use 106, and in the case of all registers on second floor, use 166. The value 136 applies only when there are approximately equal heating loads on the first and second floors.

#### Application of the Formula to an Actual Furnace

The preceding discussion is based upon tests of an actual furnace having a grate area of 2.88 square feet and a heating surface above the grate of 58.9 square feet. Applying the equation just derived to this furnace when burning coal at the rate of 7.5 pounds per square foot of grate, and using the same coal as fired in the tests with a heat value of 12,790 B. t. u. per pound, we get:

Rating in square inch (4)  
of leader pipe =  
$$\frac{0.722(2.88 \times 7.5 \times 12,790 \times 0.55)}{136} = 808$$

#### Method of Allowing for Heating Surface in the Rating of a Warm-Air Furnace

Again note that the exact value for this plant of 0.722 is used instead of the suggested average value 0.75 as shown in equation (3).

Another furnace with a grate area of 2.47 square feet and a heating surface above the grate of 67.8 square feet gave, when tested, a capacity somewhat greater than the first when burning coal at the same rate per square foot of grate, showing that the ratio of heating to grate surface must be taken into account by any rating formula.

The heating surface to grate surface ratio for the first furnace

$\frac{58.9}{2.88} = 20.5$ , and for the sec-

ond furnace was  $\frac{67.8}{2.47} = 27.5$ , and

the heat available at the bonnet per square foot of grate was 53,000 B. t. u. and 61,000 B. t. u. per hour respectively. In checking up these heating surface areas from Bulletin No. 141, you will find the total area of the first furnace listed as 70.3 square feet, of which 11.4 is ash pit surface. The second furnace is listed as 78.4 square feet of which 10.6 is ash pit surface. Since the American Society of Heating and Ventilating Engineers has defined heating surface as surface above the grate, we have deducted the ash pit surface in each case, although the writer believes such surface to be quite effective with combustion rates of 7.5 pounds and above. Hence, for equal grate areas there was an increase of  $61,000 - 53,000 = 8,000$  B. t. u. in bonnet capacity, and the heating surface to grate surface ratio increased  $27.5 - 20.5 = 7$  units, or an increase of 1140 B. t. u. per unit of the ratio of heating surface to grate surface above a ratio of 20.5.

It would, therefore, appear that each unit increase in the heating surface to grate surface ratio has added  $\frac{1140}{53,000} \times 100 = 2.15$  per cent to the bonnet capacity. It must be expressly understood that this gain in capacity of 2.15 per cent per unit increase in the heating surface to grate surface ratio does not continue indefinitely. Later tests on furnaces with high ratios will determine this point,



but for the present it will probably be safe to assume that the gain in capacity does not fall off appreciably for heating surface to grate surface ratios below 30 to 1. We may apply this correction to our rating equation (3) by using the even values 20 for base ratio and 2 for per cent gain, and allow for the effect of heating surface by multiplying the normal rating value as obtained in equation (3) by  $1 + (R-20) \times 0.02$ , where  $R$  = ratio heating surface to grate surface.

There would, of course, be no allowance made for furnaces in which  $R = 20$ , since  $1 + (20-20) \times 0.02 = 1 + 0 = 1$ , and multiplying by 1 has no effect. Also note that if  $R$  is less than 20, the value is less than 1, and such a furnace would be penalized for deficient heating surface.

To illustrate the effect of this correction, suppose we now compute the rating of the furnace which has a heating surface of 67.8 square feet and a grate area of 2.47 square feet, or a heating surface to grate surface ratio of 27.5. By equation (3), using 0.722 instead of 0.75 we have,

$$\begin{aligned} \text{Square inch of leader pipe supplied} &= 0.722 \frac{(G \times C \times F \times E)}{136} \\ &= 0.722 \frac{(2.47 \times 7.5 \times 12,790 \times 0.55)}{136} \\ &= 691. \end{aligned}$$

But this furnace has a heating surface grate surface ratio of 27, for which an allowance should be made by multiplying by the following factor:

$$\begin{aligned} 1 + (27-20) \times 0.02 &= \\ 1 + 7 \times 0.02 &= 1.14. \end{aligned}$$

so that the final rating becomes  $691 \times 1.14 = 788$  square inch of leader pipe.

For general use, a single equation (5) can be used making it possible to include the factor for heating surface to grate surface ratio in equation (3) and express the final rating of a furnace in square inches of leader pipe as:

$$\begin{aligned} 0.75 \frac{(G \times C \times F \times E)}{136} \times \\ [1 + (R-20) \times 0.02] \end{aligned} \quad (5)$$

It must be remembered that the values used in the preceding discussion are based on tests of a carefully designed plant, and later tests in the new Warm Air Heating Research Residence on other types and sizes of furnaces may lead us to change some of the values slightly.

For commercial ratings, the

manufacturer should certainly allow some factor of safety to account for actual installation conditions where usually some conditions are not entirely satisfactory. That is, ratings as determined by formulas 3, 4 or 5 should probably be reduced somewhat before they are published in commercial catalogs.

## Furnace and Stove Industry Shows Growth of 50 Per Cent From 1921 to 1923

### Ohio and Illinois Lead in Number of Manufacturing Establishments

THE Department of Commerce announces that, according to data collected at the biennial census of manufactures, 1923, the establishments engaged primarily in the manufacture of heating and cooking stoves, ranges, and furnaces, *not including gas, oil, and electric stoves, heaters, and ranges, nor steam and hot-water heaters*, reported products valued at \$155,601,516, an increase of 53.2 per cent as compared with 1921, the last preceding census year. The establishments classified in this industry are those whose principal products are cast iron, sheet iron, and wrought steel stoves, ranges, and furnaces; fireless cookers; and furnace and stove parts.

In addition, stoves and furnaces are manufactured to some extent as secondary products by establishments engaged primarily in other industries. The value of such commodities thus made outside the industry proper in 1921 was \$2,449,260, an amount equal to 2.4 per cent of the total value of products reported for the industry as

classified. The corresponding value for 1923 has not yet been ascertained, but will be shown in the final report of the census.

Of the 343 establishments reporting for 1923, 51 were located in Ohio, 46 in Illinois, 37 in Pennsylvania, 23 in Michigan, 21 in Indiana, and the remaining 165 in 26 other States. In 1921 the industry was represented by 357 establishments, the decrease to 343 in 1923 being the net result of the loss of 58 establishments which had been included for 1921, and the addition of 44 new establishments. Of the 58 establishments lost to the industry, 20 had gone out of business before the beginning of 1923, 3 were idle throughout the year, 6 reported products at less than \$5,000 (no data are tabulated at the biennial censuses for establishments with products under \$5,000 in value) and 29 had been engaged primarily in the manufacture of stoves and furnaces in 1921, but reported other commodities as their principal products in 1923 and were therefore transferred.

#### Summary

	1923.	1921.	Per cent of increase a
Number of establishments.....	343	357	-3.9
Wage earners (average number) b.....	32,994	24,530	34.5
Maximum month, October.....	34,808	29,250	—
Minimum month, January.....	29,897	19,649	—
Per cent of maximum.....		67.2	—
Wages .....	\$45,817,125	\$29,827,914	53.6
Cost of materials (including fuel and containers) .....	\$53,279,128	\$40,999,611	30.0
Products, total value.....	\$155,601,516	\$101,572,793	53.2

a A minus sign (-) denotes decrease.

b Not including salaried officers and employees nor proprietors and firm members.

# Kothe Discusses Warm Air Fan Heating for Two-Story School House

*Writer Compares Figures of Heat Losses With and Without Use of Special Ozone Apparatus*

Written Especially for AMERICAN ARTISAN by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

**I**N School House Heating a number of factors must be taken under consideration that is not necessary in ordinary house heating. We shall take up some of these features with the accompanying plans, which were designed by a warm air furnace manufacturer upward of twelve years ago.

In this case the school is of a two story building and contains seven class rooms and one large assembly hall. One of the class rooms, number 7, is very large and is no doubt, instructed by lectures from the principal of the school. Most school rooms are proportioned to accommodate 50 scholars, and each room possesses a wardrobe.

Today, on this job if a modern heating engineer was asked to arrange for it to be in first class order he would undoubtedly tear the entire system out and redesign it in the light of modern experience. This is not a criticism of the design we are illustrating, because there are numerous such systems being installed in these years of better knowledge and experience—many of which may not be on a par with the one we show.

It is a rather difficult task to include all the factors that make up for a design in this article. A person could readily cover a whole year of articles and then not exhaust the factors on which practical judgment is based while working out a good design. In general, a person when describing such a system—he covers only the accomplished fact; the established design. He does not go through the hundred and one processes of mental comparison and calculation by which he first arrives at the design. This is ordinarily too long a description and some of it is monotonous

calculation work—that a designer feels, once is sufficient to go over.

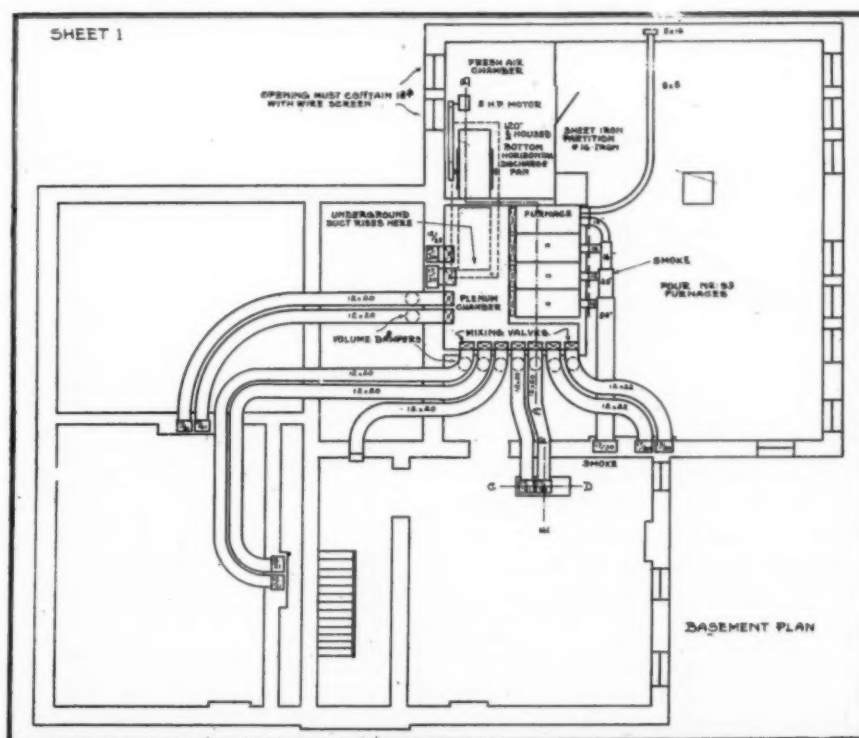
On Fan Heating Installations, as applied to warm air furnace work, there are not yet sufficient data available to know definitely what can be accomplished. Only a few furnace manufacturers have made tests or had tests made to determine the amount of heat given up from a heater under fan operation. Another factor is the friction loss in the air passing through the heater casing or housing. As it is, most designers ignore these factors and figure only the grate area, which does not take into account the heating surfaces.

Another factor that most warm air designers do not take into account is the friction developed in the dust and riser system. They proportion their pipe sizes by simple rules of calculation, not knowing

how much friction is produced in each duct, the heater, or other parts. They overcome this arbitrarily by selecting a fan of from 1 inch to 1½ inch resistance in static pressure. Under this system, there is no way of knowing whether the fan is too large or too small; if the heaters are of a satisfactory size or not; if ducts with less friction produce a greater air flow; thereby robbing others with more friction. The only way this is controlled is by means of volume dampers. These again set up friction, and here again the designer does not know how much pressure is exerted on the fan to overcome the resistance.

## Procedure Followed

On every heating job, one of the first things to be determined is the heat loss through the walls, windows and cubical contents. With fan heating, the pressure is usually



Basement Plan of School House Installation

outward and therefore more heat is delivered than ordinarily filters out under normal conditions. But it is well to take one room and check up. Thus, take room number 6, which measures  $30\frac{1}{2} \times 31$  by 16 feet ceiling. In this case these ceilings are extraordinarily high as 12 feet is generally sufficient.

The heat loss may be determined by either the B. T. U. individual unit system, as we shall use, or the (thousands) unit system evolved at Urbana, Illinois. The following factors make up our heat loss coefficients:

Outside air considered at zero.

Inside air considered at 70 degrees.

Heat loss through 13 inch brick wall=21 B. T. U. for 70 degrees difference.

Heat loss through glass=70 B. T. U. for 70 degrees difference in temperature.

Heat loss of cubical contents=1.27 B. T. U. for 70 degrees difference.

Windows measure  $4 \times 7$  feet.

Gross wall area=  
 $(30\frac{1}{2} + 31) \times 16 = 984$  B.T.U.  
 Loss  
 Windows= $6 \times 4 \times 7 = 168 \times 70 = 11760$   
 Net wall area sq.

ft.  $= 816 \times 21 = 17136$

Cu. ft.= $30.5 \times 31 \times 16 = 15128$

$15128 \times 1.27 = 19213$

Total heat loss in room=48109 heat loss per hour. That is the amount of heat that must be provided every hour to supplant that loss by filtration. As the weather moderates above zero, less heat loss takes place and less fuel is required.

Now, if we consider the heat required to temper the air for fan heating purposes, using outside air for the intake with a base of zero, and we develop a register temperature of 145 degrees. Here we must put enough heat in the air to warm each cubic foot of air 145 degrees in temperature. In school each child or person requires 30 cu. ft. of air per minute, and with 50 scholars to a room, we have

$50 \times 30 = 1500$  cu. ft. of air re-

quired per minute. If each cubic foot of air must be raised 145 degrees in temperature and 1 B. T. U. will raise 55.2 cu. ft. of air one degree; then each cu. ft. of air will require as many B. T. U. as

145

$= 2.62$  B.T.U. to heat 1 cu. ft. 55.2

of air, so that to heat 1500 cu. ft. per hour we require  $1500 \times 2.62 \times 60 = 235,800$  B.T.U.

If we subtract the heat loss through the walls and windows and cubical contents, we arrive at 87,691 B. T. U. that the fan system will require over the still air method of heating. This is equal to about 12 lbs. of coal of 13,000 B. T. U. with 60% efficiency, and is more costly than if only the air were heated in the rooms. This is, of course, chargeable to ventilation. In a school, the only way to overcome this would be to install an "ozonator" and recirculate the air. The ozonator burns out the impurities of the air, as bacteria, germs, certain odors, etc. The recirculating of the air would save heating outside air from zero to about 60 degrees; so that there would be a difference of

60—145

$= 1.54$  B.T.U. per cu. ft. of air. 55.2

This will be a saving in fuel of 1.08 B.T.U. over taking outside air at zero temperature for each cubic foot.

If there are:

6 class rooms of 50 pupils each	=300
1 assembly room of 100 pupils	=100
1 large class room 100 pupils	=100
2 halls equal to two rooms of 50 pupils each	=100

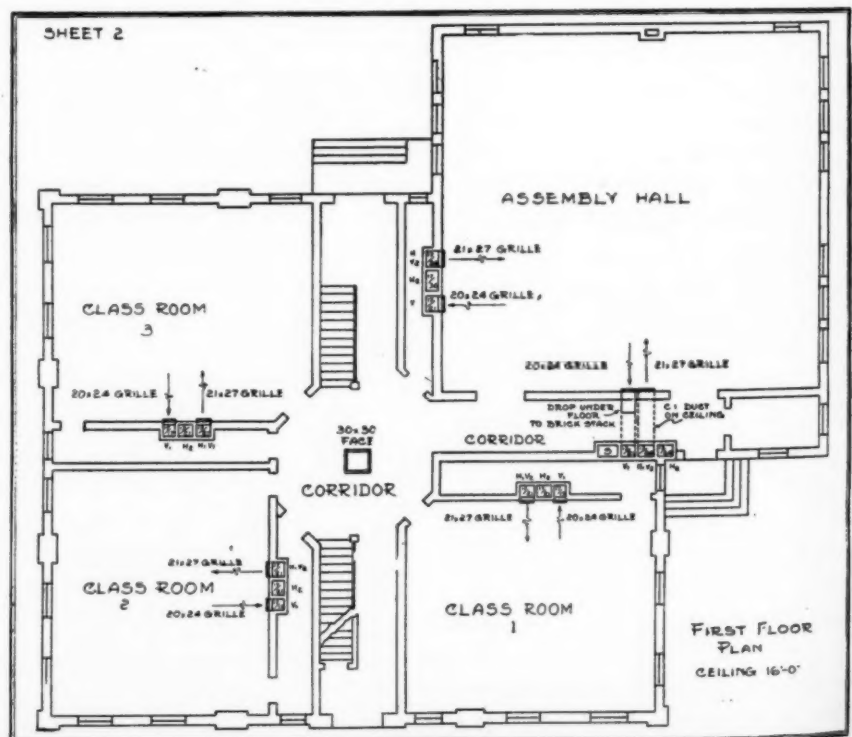
Equivalent in scholars to be supplied =600  
 $600 \times 30 = 18,000$  cu. ft. per minute.

If 1.08 B.T.U. is saved by recirculation; in one hour as many heat units as

$1.08 \times 18,000 \times 60 = 1,166,400$  B.T.U. per hour saved. In pounds of coal this will be:

1,166,400  
 $= 90$  lbs. approximately  
 13,000 per hour.

This would pay for an ozonator equipment in a remarkably short time.



First Floor Plan



However, considering zero weather as our basis, and outside air intake for 18,000 cu. ft. of air per minute we will require every hour:

$$2.64 \times 18,000 \times 60 = 2,851,200 \text{ B.T.U. per hour.}$$

If our furnaces work 60% efficient, and burning 5.5 lbs. of coal per sq. ft. of grate surface per hour most efficiently; we have

$$2,851,200$$

$$\frac{2,851,200}{13,000 \times 60\% \times 5.5} = 66.46 \text{ sq. ft. of grate surface required.}$$

Our furnaces should have this grate surface in order to dissipate 2,851,200 B.T.U. per hour and burning 5.5 lbs. of coal per sq. ft. of grate. This shows that a very large battery of furnaces are required if the above conditions are fulfilled. However, this large ratio is overcome by assuming an average outside temperature of 35 degrees above zero, and bring in the air as close to the 70 degrees as possible to provide the necessary heat and ventilation. That would be only 35 degrees difference that the air must be raised in temperature. Hence:

35

$$\frac{2,851,200}{35} = 81,463 \text{ B.T.U. per cu. ft.}$$

55.2

Worked out on the new basis we have:

$$.634 \times 18,000 \times 60$$

$$\frac{684,720}{13,000 \times .60 \times 5.5} = 16 \text{ sq. ft. of grate area required.}$$

This will require a battery of 4 furnaces, each having 4 sq. ft. for its grate area, and this works out to be a 27 inch grate in diameter. Note that under these 35 degrees of difference in temperature we place into the air:

$$.634 \times 18,000 \times 60 = 684,720 \text{ B.T.U. per hour.}$$

The natural heat loss is 528,082 B.T.U. for the whole building, and so we still have a surplus of 156,638 B.T.U. that is placed in the air and is chargeable to ventilation. Not knowing the size of heater specified on these plans, we should play safe and install at least a 30 inch fire pot

heater; which will give a margin of safety.

#### Proportioning of Duct and Riser Flue Sizes

On the basis of 600 scholars we have arrived at 18,000 cu. ft. of air required per hour. This is the figure we go by in selecting the fan, coming as near to it as possible but giving the benefit to a larger size. Where a person does not know the friction of the heaters or how to determine the friction in the ducts; it is best to select a fan of about  $1\frac{1}{2}$  inch static pressure. This is the amount of resistance it will overcome.

The air flow per room is 1,500 cu. ft.

Air velocity in basement ducts = 900 ft. per minute.

Air velocity in riser flues = 600 ft. per minute.

Air velocity in diffusers = 400 ft. per minute.

So if we divide the air flow in feet into the cubical feet required, we obtain the square feet of duct area required. Thus for the basement duct we have

$$1500 \div 900 \text{ velocity} = 1.667 \text{ sq. ft. area.}$$

Multiplying this by 144 we have 240 sq. inches of area required. If

we can make the depth of our ducts 20 inches we have

$$240 \div 20 = 12 \text{ inches as the width.}$$

Hence all basement ducts supplying 1,500 cu. ft. can be made 12x20 inches in size. Rooms requiring a larger air supply must be figured on the air they are to deliver. Thus, the assembly room and the large class room number 7, are supplied with two diffusers each.

The flues are determined in a similar way:

$$1500 \div 600 = 2.5 \text{ sq. ft.} \times 144 = 360 \text{ sq. inches.}$$

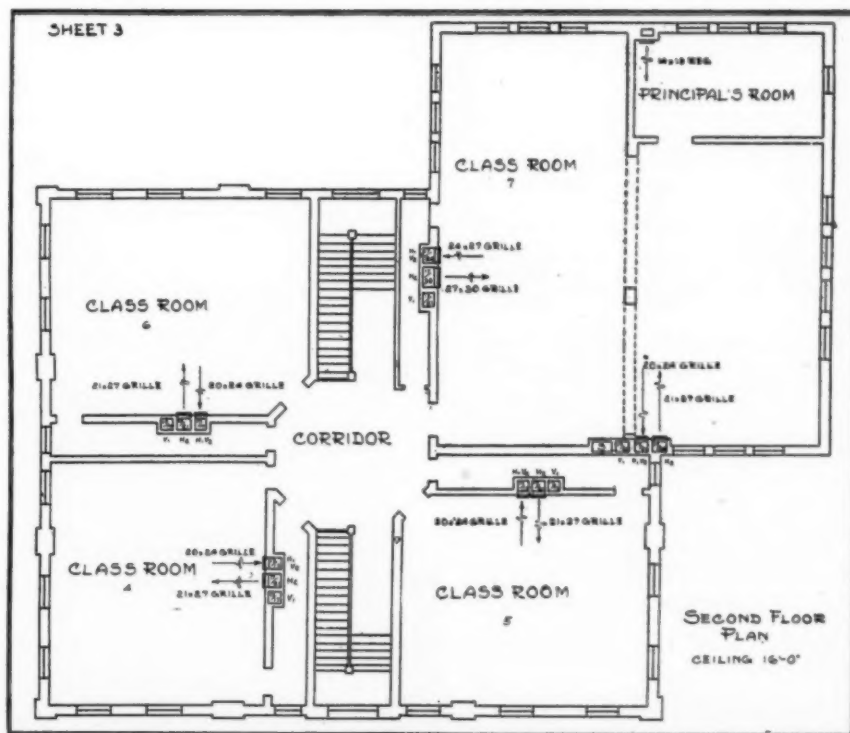
If we can make the flue 17 inches wide; its length will be;  $360 \div 17 = 21$  inches.

Here we see the measurements thus worked out tally remarkably close to those on our plans, and we can assume this was the system followed by the original designer. Now about the register grills or diffusers; if the air is to flow at say 400 ft. per minute; we have  $1500 \div 400 = 3.75 \text{ sq. ft.} \times 144 = 540 \text{ sq. inches.}$

If one side of the grill can be 20 inches wide; the length will be:

$$540 \div 20 = 27 \text{ inches.}$$

This, of course, does not allow for the obstruction of the grating, and 20 to 35% must be added for this feature.



Second Floor Plan

In this way we proceed for each room requiring a different air supply, and when all sizes are decided upon; the heater is placed in its most convenient position. From this heater the pipe lines are sketched in roughly; taking the most direct position possible to the riser flue. This then permits a suitable perspective for viewing all the ducts, and it allows any changes that may be considered best.

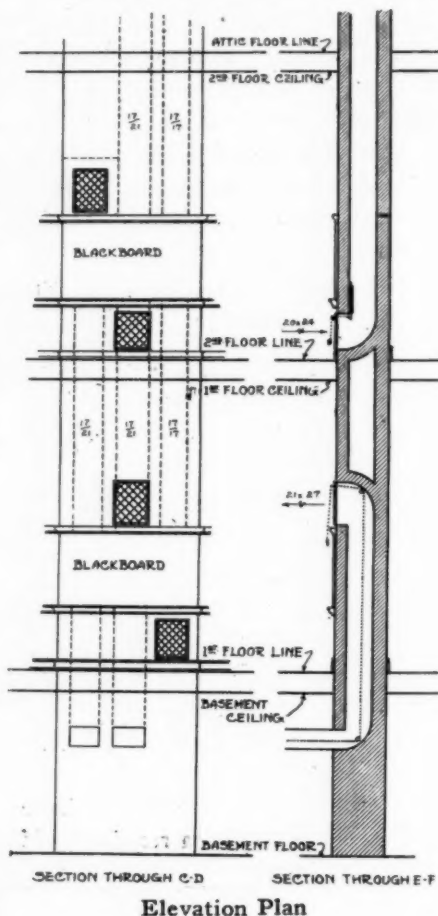
In this case there are two very short duct lines; which must no doubt, be dampered down pretty much to prevent these flues robbing longer and more disadvantageously located. If this system were to be designed to equalize the friction, such as the larger indirect systems are—every duct would have to be proportioned as becomes the frictional resistance in the longest duct—that is the duct with the most elbows, giving equivalent length.

Here, a chart is used for determining the inches of water in a U-tube caused by frictional resistance. Thus if the longest equivalent duct length were found to equal .087 inches of water—all the other ducts must be proportioned to this friction. Hence if the duct in question were 127 feet in equivalent length and produced .087 inches of water pressure in frictional resistance—a duct 20 ft. in equivalent length would also require this amount of friction.

If this were not done the shorter duct would rob the longer duct. So we have to proportion the smaller duct in proportion, maintaining the same friction head, for its full length. But this reduces the size

of the duct, and the velocity is increased, so that the same amount of air is delivered in a smaller duct with the same frictional loss. This method has not been used on this set of plans we show and to demonstrate it requires more space than this article allows.

About the first step in designing



Elevation Plan

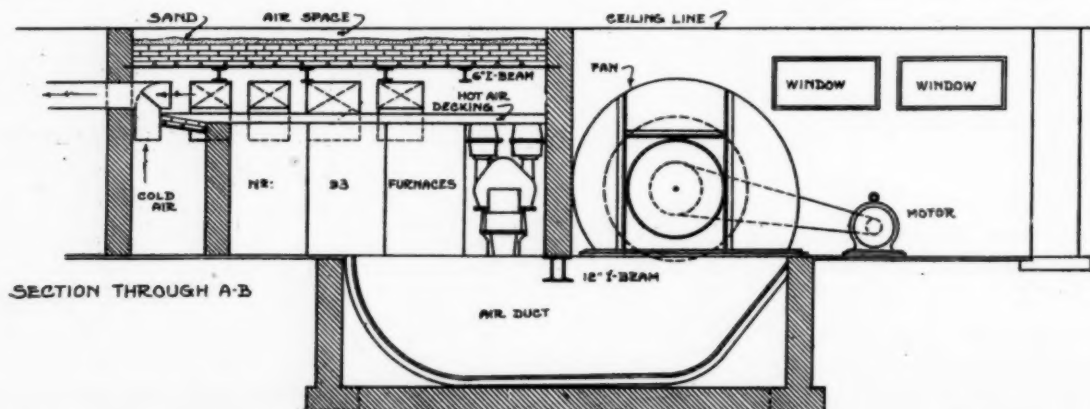
heating systems is to determine the heat loss from the building. Then to determine the outside air temperature; next the inside air temperature delivered at the registers. We then work for air supply and pipe sizes per room, and determine

every factor possible before ever drawing a line on the plans. When all factors are determined, the next step is to locate the diffuser registers.

This is a very particular science in itself, because a person must know where air currents are produced, how to place his registers in the wall to avoid bad draughts, how to dissipate the chill from the outside walls and windows, where to place the vent head register so a proper circulation is produced.

The vent heads are made the same size as the diffuser heads, stacks, etc. It has been found most beneficial to place these vent registers in the wardrobe, so the diffuser air circulates the room, is used up and then filters through the wardrobe. In this way the children's clothes are ventilated and any odors attached will not circulate in the class room. On these wardrobes they generally have two doors, but if not an opening is placed in the center on the floor, which is very much like the old fashion chicken doors in barns; that some of us used to crawl through when we were younger. Here the air circulates and passes up the vent stack. In our plan an older practice is followed, which is quite satisfactory when nothing else can be provided.

After the register grills have been located; it is a simple process to follow up in designing the run of ducts. These can take on any one of a dozen or more shapes; as possibly 12 different men will have 12 different designs. If each strives to reduce pipe length and all unnecessary elbows and other fric-



Arrangement of Furnaces and Fan

tional resistance that is all that can be achieved.

This is but a glossary; it is not enough to tell anything satisfactory about anything much. That is why Heating and Ventilating is an engineering profession. Any farmer mechanic can connect up the pipe or guess at their sizes and slap them in that way. But to deliver an honest-to-goodness job requires training in lots of technical aspects, as well as practical outcomes.

Warm air furnace designing will gradually be worked to a fine nicety and especially so for fan heating. The old generation which grew up with the industry had much time to experiment between each successive discovery and so in the process of years many data have been built up. The young generation that is now entering the trade has only one hope of qualifying and that is by concentrated study. At the Univer-

sity of Illinois, all the past experience has been refined and charted into scientific data for the warm air heater industry. This industry is now on a par with steam and water and the larger air systems—that is each has its own place. Steam and water have their place and are a necessary part of the heating industry.

So all this vast knowledge is laid into the lap of every incoming tradesman. Operating the hammer and snips or cleaning out smoke pipes, will never in the world make it possible to acquire this scientific knowledge. No, sir: it must be learned by concentrated study. Any man who does not believe this will have to spend 10 to 20 years trying to acquire it by practical installation, but I do feel sorry for the public that must pay for this ignorance with actual discomfort and real money.

fort in developing prospects, in following them up, in working out the most economical method of installing and seek to sell quality installations rather than place the burden of his selling argument upon the price, a great many more Furnaces could be sold to the mutual advantage of all concerned. Manufacturers more than ever before are endeavoring to assist the installers in developing their business along such lines. The wideawake dealer should take every advantage of the dealer helps the manufacturer is ready to supply.

Every effort should be made to secure the general adoption of the Standard Code as the guide for proper installation of Warm Air Heating Systems. In cities where Building Codes are in effect, an effort should be made to have this

## *Sell Yourself on Standard Code and Sell Your Furnaces on That Basis, Says Jones*

*Make Proper Use of Excellent Selling Helps Furnished By Manufacturers, He Urges*

IRVING L. JONES, former President of the National Warm Air Heating and Ventilating Association and now chairman of its Executive Committee, writes:

With the Warm Air Heating Fraternity, and we use the term advisedly, entering upon the new year, I am sure we all feel the closer bond of relationship and mutual understanding which has developed with the year 1924.

The two outstanding problems before the Furnace Industry are how to make better merchants of all interests engaged in the Warm Air Heating Business, and how to secure better installations of Warm Air Furnaces, so that the general public will have a greater respect for, and a better appreciation of, the real merits of Warm Air Heating.

Those engaged in the chain store methods of selling Furnaces go for-

ward each year, and prosper at the expense of the average dealer, because of his lack of aggressive selling methods similar to those used by such competitors. If the local dealer would devote the same amount of study and persistent ef-



I. L. Jones

**Copies in Pamphlet Form of the Standard Code Covering the Installation of Warm Air Furnaces in Residences, can be obtained from most of the furnace manufacturers and also from the following organizations, the offices of which are given:**

National Warm Air Heating & Ventilating Association, 52 West Gay Street, Columbus, Ohio.

The American Society of Heating & Ventilating Engineers, 29 West 39th Street, New York City.

National Association Sheet Metal Contractors, 608 Chestnut Street, Philadelphia.

Western Warm Air Furnace and Supply Association, 2407 Cuming Street, Omaha, Nebraska.

The Midland Club, 52 West Gay Street, Columbus, Ohio.

Standard Code accepted and incorporated therein.

In every possible way we should proclaim the merits of this Code. Better installations resulting from its use will be of untold value to our industry.

Let our slogan be for 1925—"Install according to the Code."



## Henry Hotten, Jr., Describes Combination Warm Air and Hot Water Heating Installation

*Dr. Hitz, the Owner, Had System Installed with View to Putting in an Oil Burner Later.*

THE article herewith describes the combination warm air and hot water heating system as it is installed in the home of Dr. H. B. Hitz, near Pine Lake in Wisconsin.

The installation is described by Henry Hotten, Jr., of the L. J.

upon a Mueller combination warm air and hot water heating system.

The residence has eleven rooms, including hall and a spacious garage.

The living room facing the lake has a southeasterly exposure, while

combination apparatus it was decided to install the hot water portion of the apparatus in the garage and the studio, these being the rooms exposed to the severe northwest winds.

The remaining portion of the house being compact and accessible to heater location was then designed for the warm air portion of the apparatus.

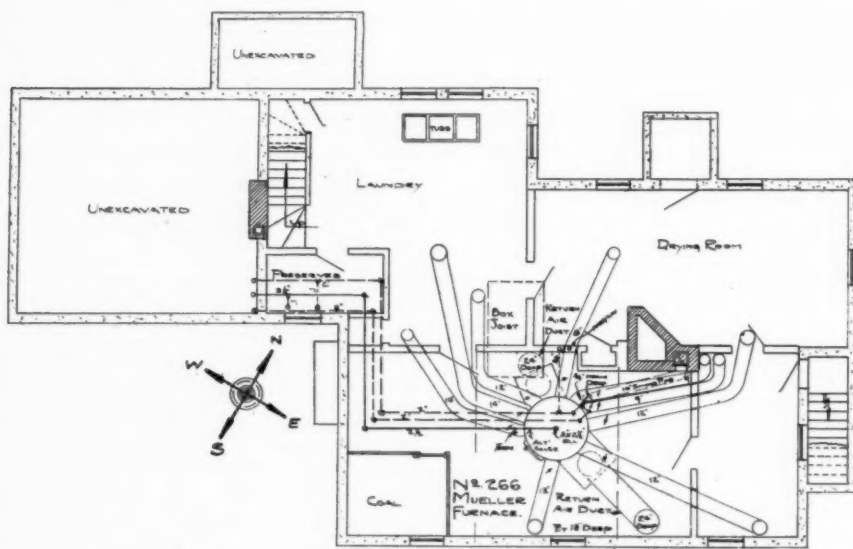
In selecting the heater Dr. Hitz had in mind the probable installation of an oil burner, the engineers, therefore, recommended a No. 266 Mueller all cast double radiator self cleaning heater.

This heater was recommended because of its extensive heating surface having a ratio of 31.4 square feet of heating surface per square of grate surface and which is of prime importance in oil burner installations, to absorb all heat generated by burner, and thereby reduce flue losses to a minimum.

The reader will note the generous proportion of warm air pipe sizes, registers and radiation.

The heat loss throughout was based on an outside temperature of minus 20 degrees below zero Fahrenheit with an inside temperature of 70 degrees, with the exception of the garage, which was based on an inside temperature of 50 degrees.

The accompanying table gives the dimensions of the various rooms, the space heated, glass and



Basement Plan for Furnace Installation in Residence of Dr. H. Hitz, Pine Lake, Wisconsin

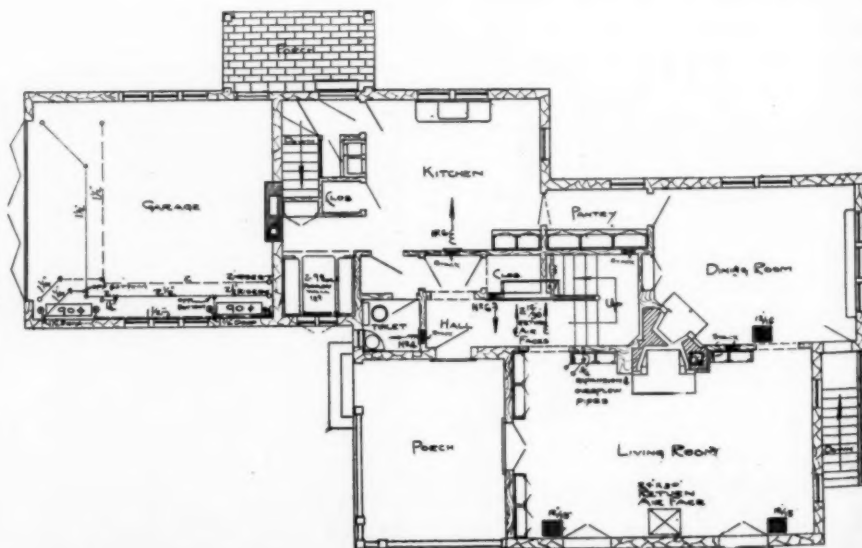
Mueller Furnace Company, Milwaukee, Wisconsin:

The accompanying floor plans are those of the residence of Dr. H. B. Hitz, situated on a bluff about 100 feet above Pine Lake and overlooking the stately mansions and palatial summer homes of wealthy Milwaukeans whose homes dot the entire shore of this exclusive summer colony.

While the major portion of homes are open only from Spring until Autumn, the Dr. Hitz residence will be an all year round home, considering the heating apparatus from this viewpoint and being acquainted with the extreme weather conditions to which a heating apparatus would be subjected in this locality, the Doctor after investigating the various types of systems offered, finally decided

the garage and studio are exposed to the northwest from which come the prevailing winds.

In designing the system as a



Plan Showing Location of Registers on First Floor of Dr. Hitz' Residence

net wall exposure, number and size of warm air pipes from heater, size of stacks and radiators and the heat loss in B. t. u.

and bell equals 398 square feet.

The latter based on an equivalent temperature of that of the warm air equals 517 square inches plus

heater castings and casing is equal to 1,655 square inches, which allows a margin of 20 per cent for friction, pipe and stack losses.

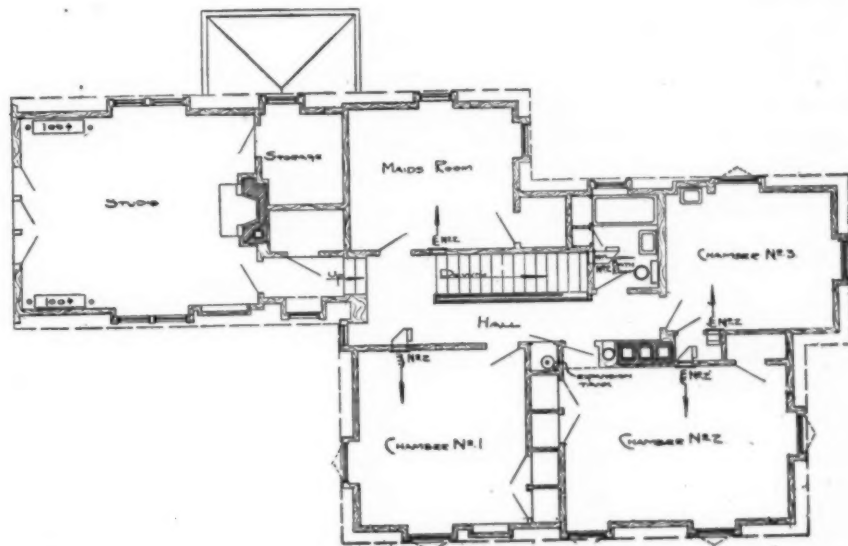
Name of Room	Size of Room			Cubic Contents	Sq. Ft.		Heat Loss in B. T. U.	Size Pipe	Hot Water		Register	Temp. O. S. Temp. —20 Deg.
	Length	Width	Height		Glass	Wall			Area	Radiation		
Dining Room.....	13'	17'	9'	3,492	70	223	16,377	1—12	113	.....	1—12x15	70
Living Room.....	15'6"	25'	9'	3,492	92	412	27,577	2—12	226	.....	2—12x15	70
Hall .....	8'	18'	9'	3,320	37	128	13,516	1—12	113	.....	1—No. 6	70
Toilet .....	4'	5'	9'									
Kitchen .....	13'	15'	9'									
Chamber 1 .....	14'	15'	8'6"	2,187	38	205	13,625	1—14	154	18	1—No. 4	70
Chamber 2 .....	13'	19'	8'6"	1,785	30	216	12,426	X	.....	.....	1—No. 2	70
Chamber 3 .....	12'	14'	8'6"	2,099	45	227	14,933	1—9	63	.....	1—No. 2	70
Bath .....	7'	8'	8'6"	1,428	30	191	11,118	1—9	63	.....	1—No. 2	70
Maids .....	12'	14'	8'6"	476	10	50	3,270	1—8	50	.....	1—No. 2	70
Studio .....	16'	20'	10'	1,428	25	162	9,810	.....	.....	.....	1—No. 2	70
Garage .....	18'	20'	9'	3,200	88	492	28,885	.....	.....	200	.....	70
				3,240	188	334	27,710	.....	.....	180	.....	50
							181,100	.....	860	398	.....	---

The heat loss was based on 109 B. t. u. per square foot of glass and 27 B. t. u. per square of wall heating through a range of 90 degrees.

While the loss on the garage was based on 85 B. t. u. per square foot of glass and 21 B. t. u. per square foot of wall, heating through a range of 70 degrees, one complete change of contents was assumed to offset the heat lost by infiltration, based on factors of 1.8 for 20 degrees below weather with an inside temperature of 50 degrees. And 1.4 for 20 degrees below weather with an inside temperature of 50 degrees.

The total warm air pipe area taken off hood of heater equals 860 square inches.

The total number of square feet of hot water radiation connected to the "Mueller" combination shoe



Plan Showing Location of Registers, Etc., on Second Floor of Dr. Hitz' Residence

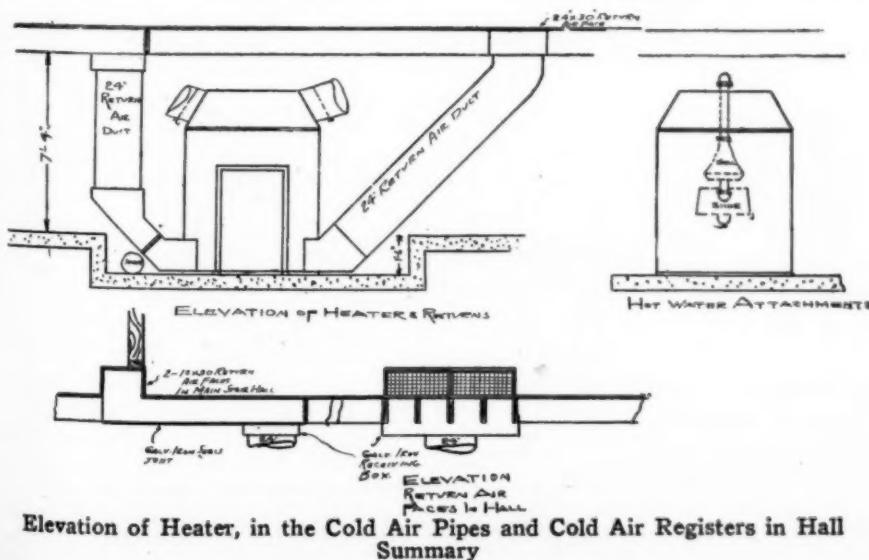
the 860 square inches which totals 1377 square inches of equivalent warm air pipe area.

The actual free area between the

The No. 266 Mueller furnace installed in this residence has a 30 inch grate and a 33 inch firepot, 157 square feet of self-cleaning direct heating surface, all direct or red glow surface. The heating surface being of such proportions as to absorb all heat generated by heater without undue loss to chimney.

The original plan called for a basement 7 feet 4 inches in depth. To obtain the necessary elevation the heater was set in a pit 12x15 feet 18 inches in depth. By referring to the detail of return air duct connections the reader will note the odd left connection.

In this instance it was necessary to invert the return air shoe on account of a sewer connection



which was placed before the pit had been dug. The return air connection from hall was built into coat closet under stair, with a 12x64 inch opening through the floor.

The joists in the basement were sealed into heater room and a galvanized receiving box was built at this point, allowing all the return air between joists to drop into this box and from that point back to heater through a 24 inch pipe.

The return in living room floor, while prominent on the plan will, not be noticeable because the owner will place a large settee between the doors which enter onto porch overlooking the lake.

All registers are brush brass finish, with the exception of bath and toilet, which are nickel plate finish.

The return air faces are brush brass finish.

The wall registers are the Mueller steel type, of sizes noted on plans.

The wall boxes and stacks are double safety type.

The hot water attachments installed in this heater are rated at 675 square feet, while the radiation installed totals 398 square feet. This excess rating over the amount installed allows a percentage for piping and also for excess load in garage which was based on a 50 degree inside temperature.

All piping both warm air and hot water has been covered to avoid heat loss into unheated basement areas.

Referring to table, we note the total heat loss in B. t. u. amounts to 181,100.

Based on factors as indicated previously to maintain 70 degrees in the residence and 50 degrees in the garage.

Since the average winter temperature in the locality of Pine Lake is approximately 32 degrees, a correction for the purpose of determining fuel requirements must be made.

Assuming a heating season of

210 days of 24 hours each, we find the total heat loss to be  $181,100 \times 24 \text{ hours} \times 210 \text{ days} = 996,744,000 \text{ B. t. u.}$  per season through a temperature range of 90 degrees. Correcting this total for average temperature conditions we find that

$$996,744,000 \times \frac{32}{85}$$

the loss will be equals 377,597,741 average loss per season. Assuming the use of good anthracite fuel with a B. t. u. efficiency of 10,000, the total pounds of coal to be burned per season would be equal to  $377,597,741 \div 10,000 = 37,760$  pounds per season + 2,000 equals 28 tons per season.

The burning of 37,760 pounds of coal per season would entail the burning of 7,552 pounds per square foot of grate area per season divided by  $(210 \times 24)$ , equals 5,040 heating hours per season or 7.49 pounds per hour, which in turn

divided by the grate area would equal an average rate of combustion of 1.5 pounds of coal per square foot of grate per season.

The efficiency per square foot of heating surface throughout the season will be  $377,597,741 \div 157 = 2,405,081 \text{ B. t. u.}$  per square foot of heating surface per season or an efficiency of  $377,597,741 \div (5,040 \times 157)$  equals 477 B. t. u. per square foot of heating surface per season.

The low season rate of combustion indicates that the heater can easily maintain its load in severest weather encountered without undue forcing and it is evident that the heater installed has ample capacity to do the work assigned.

The entire apparatus as shown on these plans was installed by William H. Davy, Nashotah, Wisconsin, who also installed the plumbing, tinning and water supply systems.

### Pathetic Figures

By Fontaine Fox



One of Our Subscribers Who Does Not Like Pipeless Furnaces Sent This in as a Warning to Reckless Installers





by throwing the entire capacity of the leaders onto this floor merely by operating the register valves and as soon as the downstairs is comfortable the valves can be set again, allowing the proper amount of heat to flow upstairs.

The registers in rooms five and six we believe would give better results if they were placed on the inside wall instead of as shown, as this would produce a circulating rather than aspirating effect on the air in the rooms but conditions in this case would not permit.

A shorter smoke travel would be

an advantage, but building construction would not permit in this case.

The heat losses and warm air pipe areas on this installation were figured in accordance with the Standard Code.

The warm air pipe area taken from the furnace is 694 square inches while the return air area is 766 square inches or approximately 11 per cent in excess.

The furnace capacity is 856 square inches while burning coal at a rate of six pounds per square foot of grate.

many 1924 was said not to have been as good as 1923 in the furnace business, but the dealer who applied salesmanship to his business finished the year with a nice increase.

"A sure way to overcome competition is to be a better salesman than your competitor. 1925 will be a year of opportunity for the men who take advantage of the opportunities confronting them."

### **Majority of Furnace Manufacturers' Prices 20 Per Cent Lower Than in 1920**

Some interesting figures on the reduction of furnace prices since 1920 were revealed recently by AMERICAN ARTISAN questionnaire sent to furnace manufacturers.

In answer to the question: "How much lower are your prices than those of January, 1920?" the following replies were received:

About 20 per cent of those who replied said their prices were from 5 to 10 per cent lower than they were in 1920. About 40 per cent said their prices were between 10 and 20 per cent lower, with a greater number near 20 per cent.

Then there were 10 per cent who claimed their prices had dropped from 20 to 30 per cent since 1920, one manufacturer saying that his prices were 40 per cent lower.

The remaining 30 per cent stated that they were not manufacturing furnaces at that time, with the exception of one who said that his records were destroyed by fire.

### **There Is More to Service Than Mere Selling**

Just plain selling is not service. Your profit on the sale is your compensation for this. The waiter receives a weekly compensation for the ordinary work which he is hired to perform; he is rewarded for the special effort which he makes to assure you comfort and convenience while in his care by the "tip." (At least that was the original idea of a "tip," and the principle remains the same.)

## **Furnace Sales Are Improving in Central States, Says Meston**

**But Improvement Will Be Known Only by Installers Who Hustle for Sales**

A. B. MESTON, Vice-President of the Quick Furnace Supply Company, sees much improvement in the business situation in the Central West with reference to the furnace business, as will be noted from the following:

"The improvement in the Furnace and Sheet Metal Business that has been looked for during the past few years is materializing in the Central West. Iowa in particular is much improved.

"Three years ago corn was 20 cents per bushel with little demand and farmers badly in debt. We are all familiar with the sharp advance farm products have taken; the farmers are no more in debt than they were three years ago, if as much; so with our new crop going to market at the present prices it cannot help but have a decided favorable effect on business.

"The effects of this new money going into circulation is being felt—the small town which seems to have been hit the hardest is coming to life and there is more demand for Furnaces, Furnace Supplies and Sheet Metal Products in these towns. The farm districts are again buying heating plants—not in great numbers, but enough to encourage the manufacturers and

jobbers to look in that direction for some volume which he has not had for some years.

"Dealers' stocks are low, which is good not only for the dealer, but for the manufacturer. The trend of prices is upward and dealers should buy merchandise for their early needs, before the prices become too high.

"There is every reason to believe that prices will advance throughout the year, although the manufacturer and jobber are doing everything possible to hold down prices, and we are all hoping there will be no runaway market in heating equipment and sheet metal products.

"The dealer who goes after business vigorously, in 1925, will get what he goes after, as without a doubt there will be more furnace business done in 1925 than any year since 1920; but remember, this business is not going to come to the dealer—you must go after it—call on the manufacturers and jobbers for sales help; you can use it in getting more business; start your campaign early and you will be surprised how much early business you can secure.

"Many dealers have done a big business the past year, although by

## W. Gunton Discourses on Pertinent Facts Relative to the Superiority of Warm Air Heating

*Illustrates His Remarks by Showing How Warm Air System Successfully Competed with Hot Water.*

WHEN the home owner, the architect and the heating contractor get together, something of substantial benefit to society is bound to materialize.

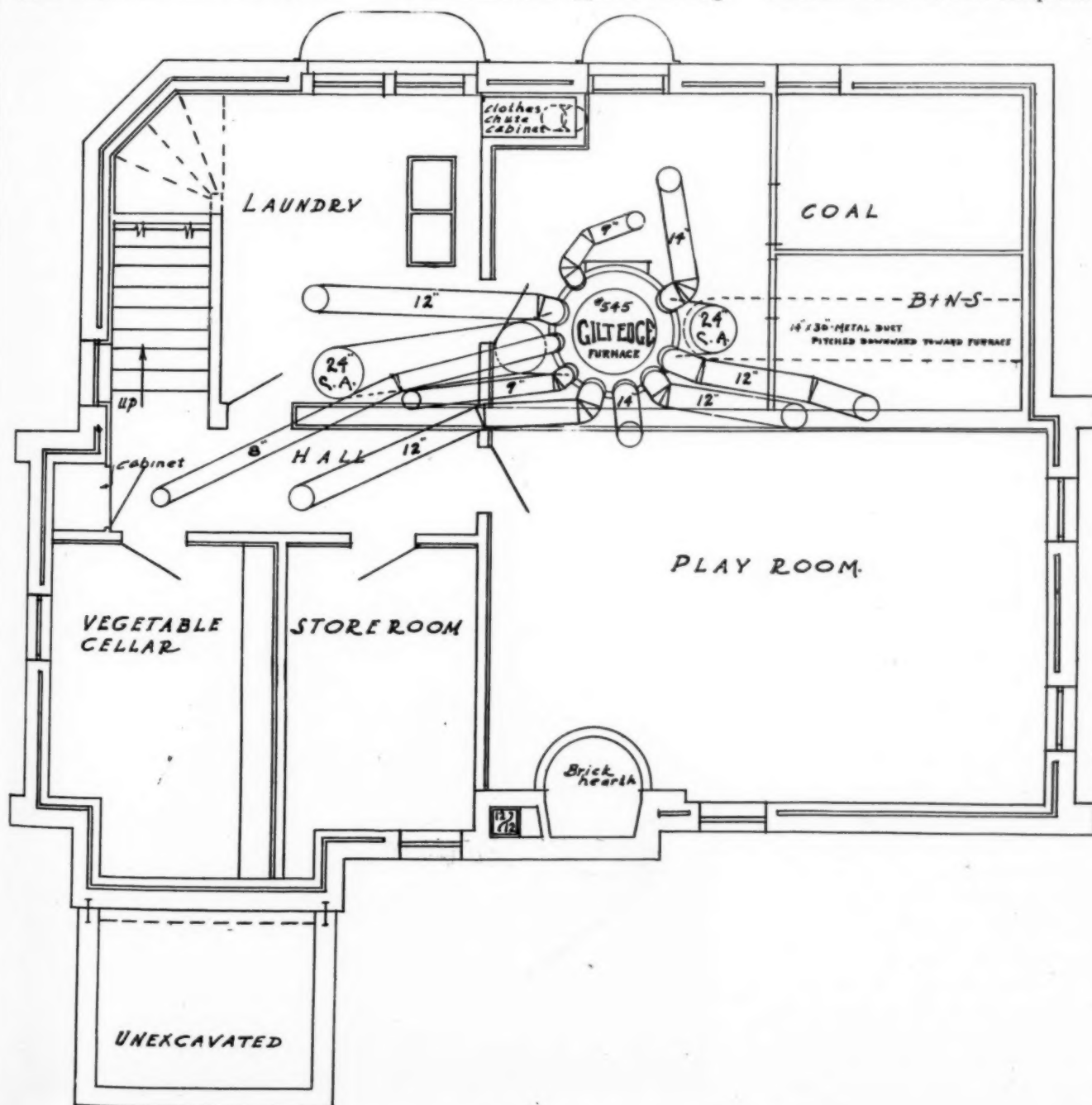
But in order to show just what did happen on one memorable occasion when the aforesaid three re-

sponsible parties got together, W. Gunton, of the engineering department of R. J. Schwab & Sons Company, Milwaukee, Wisconsin, has written an article on a warm air furnace installation. In his discourse, which follows, Mr. Gunton has selected a type of building

not ordinarily heated with warm air:

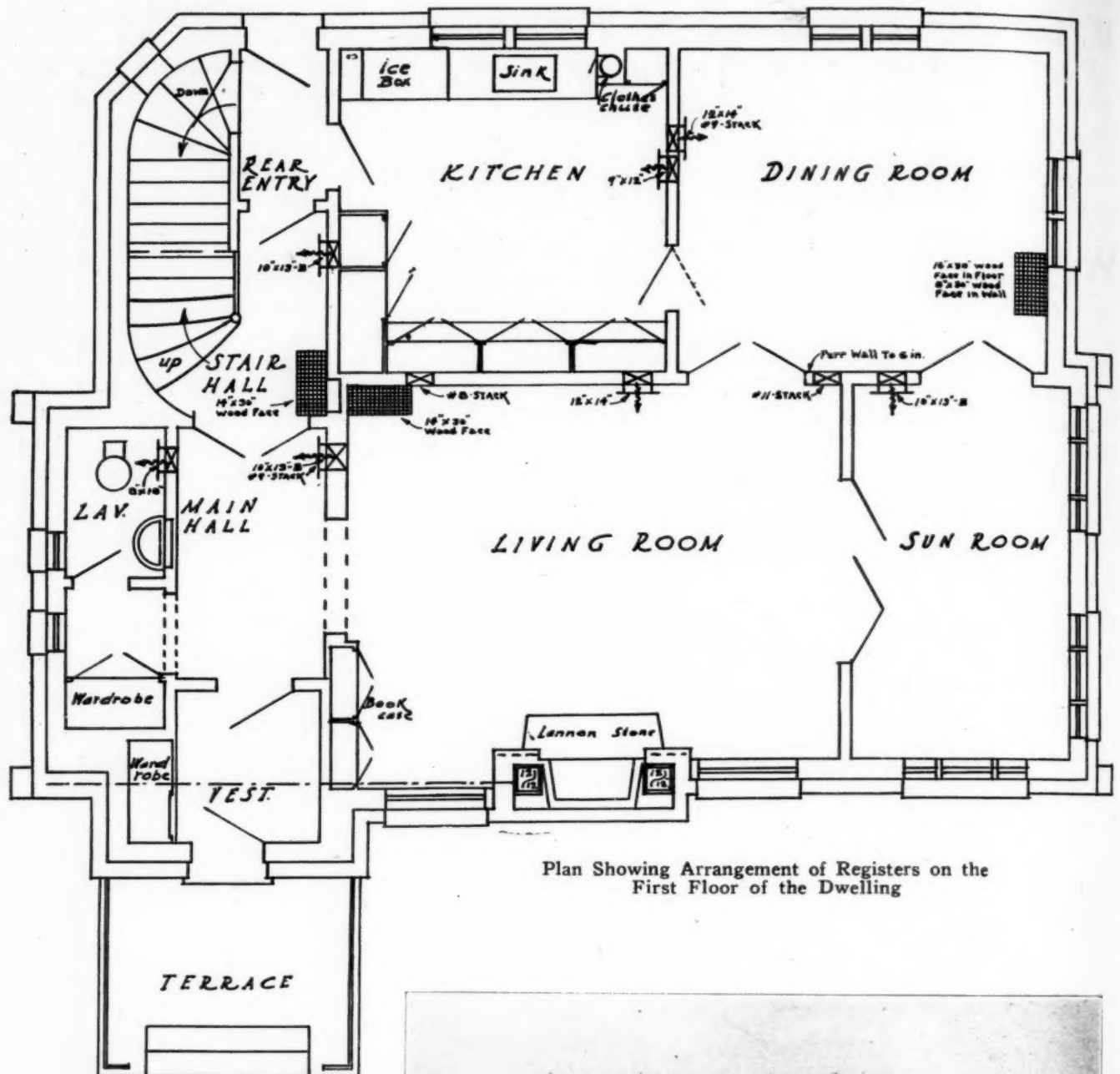
The accompanying heating plan is not presented for any peculiarity in its layout, nor anything out of the ordinary in warm air heating, but is submitted with the sole idea of illustrating what can be done with proper coöperation between the architect, homeowner and heating contractor.

The building is of a type and of a cost not ordinarily heated with warm air, and the warm air heating contractor is certainly missing something in not going after this class of work—not in competition



Basement Plan of Warm Air Heating System in Private Residence





Plan Showing Arrangement of Registers on the First Floor of the Dwelling

with the ordinary type of warm air heating, but in direct competition with hot water, which is generally used in buildings of this type. Certainly, hot water has nothing on a good warm air job, but a good warm air job has considerable on a hot water job.

First, the initial cost of a warm air system is less. Secondly, a furnace is more economical to operate, mainly for the reason that the air (which is used in either case for conveying the heat) is heated directly by the warm air furnace and carried directly to the rooms to be heated, while with the hot water system, the heat is conveyed by the hot water to the radiators in the



Exterior View of the Dwelling the Heating System of Which is Described Herewith

several rooms, and is from these units distributed by circulation of the air. Because of this round-about process the hot water plant is slower in operation and therefore most costly to maintain.

The expense of upkeep is greater with hot water, especially when proper attention is not given the heating system, and from a health standpoint, the warm air furnace again has the advantage, because with warm air heating the air can be properly humidified, which is impossible with a hot water system.

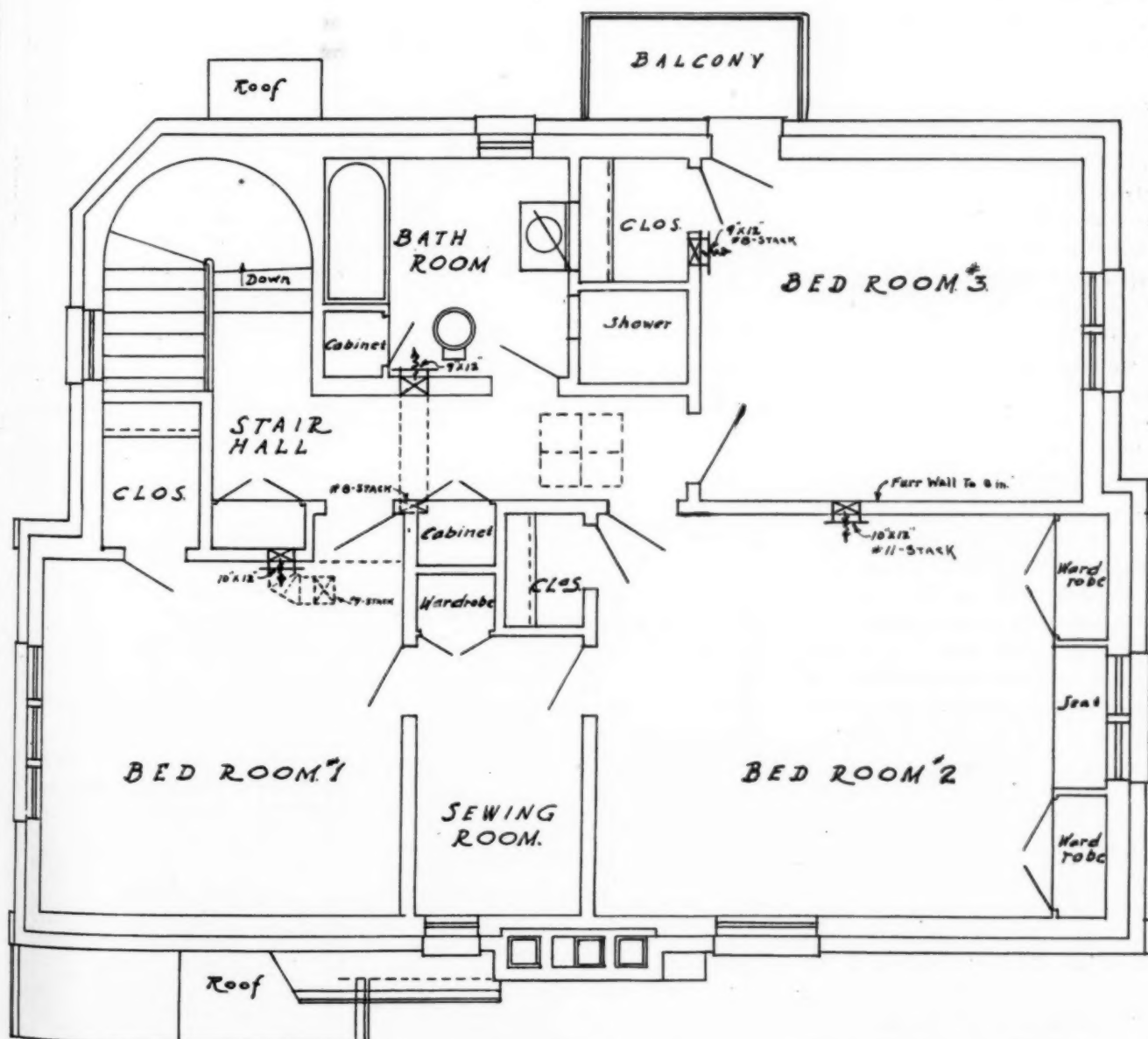
It is probably true that a great many of the better class of homes have not been properly heated with warm air, which has caused home builders to become rather skeptical

and unwilling to take a chance. These faulty installations are the work of those heating contractors who in most cases are too anxious to get the job, and go after it, believing that the only way they can get the job is to be the lowest bidder, and figure accordingly. If they succeed in getting the job, they have to cut down on their costs wherever possible in order to show a profit, which results in a poor job, and a dissatisfied customer. Furthermore, the heating contractor does not stand up for his rights in insisting upon that coöperation through the architect, which is so necessary to the successful operation of the furnace he installs, namely, the location of the furnace,

registers, etc., and partitions of proper width to carry the correct sized pipes necessary to heat the rooms.

This particular job was laid out by the architect for hot water heating, but the owner, being somewhat partial to warm air, asked the writer to have a chat with the architect. He stated that he preferred warm air heating, but had been so disappointed because of the poor success resulting from the warm air systems specified in various buildings, that he had discontinued this method of heating, and was using hot water systems entirely.

The architect was told that the building in question could be prop-



Second Floor Interior Plan of Dwelling Drawn With a View to Showing Location of Heating Plant Registers

erly heated if he and the owner were willing to make the necessary changes in their plans, which included the following:

Changing the location of the furnace room from under the reception hall to the location under the kitchen as shown; changing doors, coal bin, etc., in the basement to conform with the new location of the furnace, and furring out partitions, where necessary, in order to allow for the proper size pipes. These things were agreed to. Our plans were made accordingly, and from these plans the necessary changes were made on the architect's drawings.

This job is now finished and full coöperation all along the line through the architect, owner, building contractor and mason contractor, was all that could be expected.

Now, this job was sold in competition with hot water, and not warm air. In fact, the Evans Gilt Edge Company, who sold and installed the job, received about \$200 more than the next lowest bidder.

Here is the point—a warm air heating system can be sold in homes of the better type if the necessary changes in the construction plans of the building are made to enable the heating contractor to properly install the job.

The piping areas for the job were figured according to the Standard Code. The total amount of leader pipe area is 936 square inches. The cold air returns have a free area of approximately the same amount.

The capacity of the furnace was arrived at by the heat loss method, that is, the heat losses from the building were computed and the grate area of the furnace was arrived at from these figures.

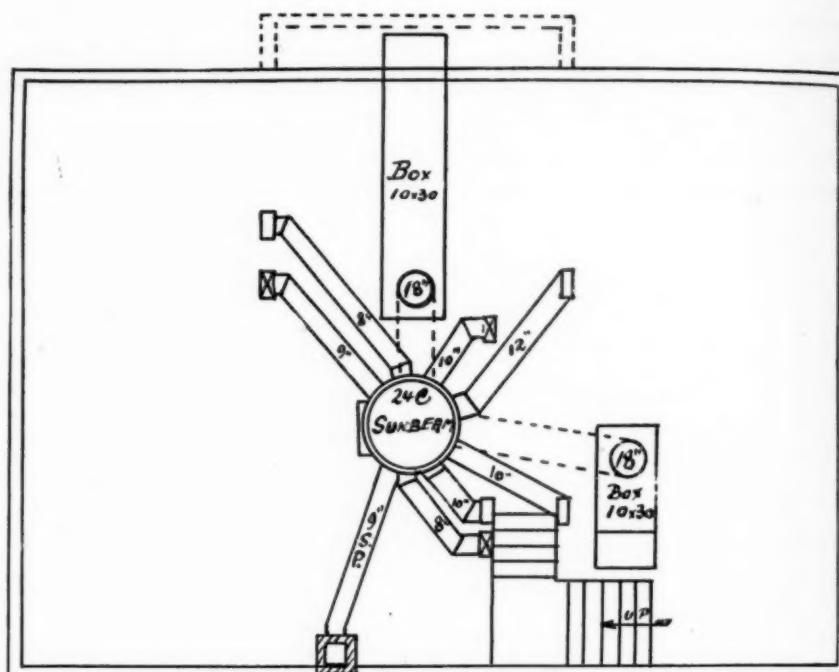
Men who are afraid of their judgment, men who don't think straight, are inclined to lean upon the opinions of others. Such people will often do anything they are told to do, and do it fairly well. If just before closing the boss says to close the doors to all the show cases, they do it—but they don't think to do it without being told.

## These Plans Made Banker Pay \$26.50 More for Each of Six Furnaces in Re-Sale Houses

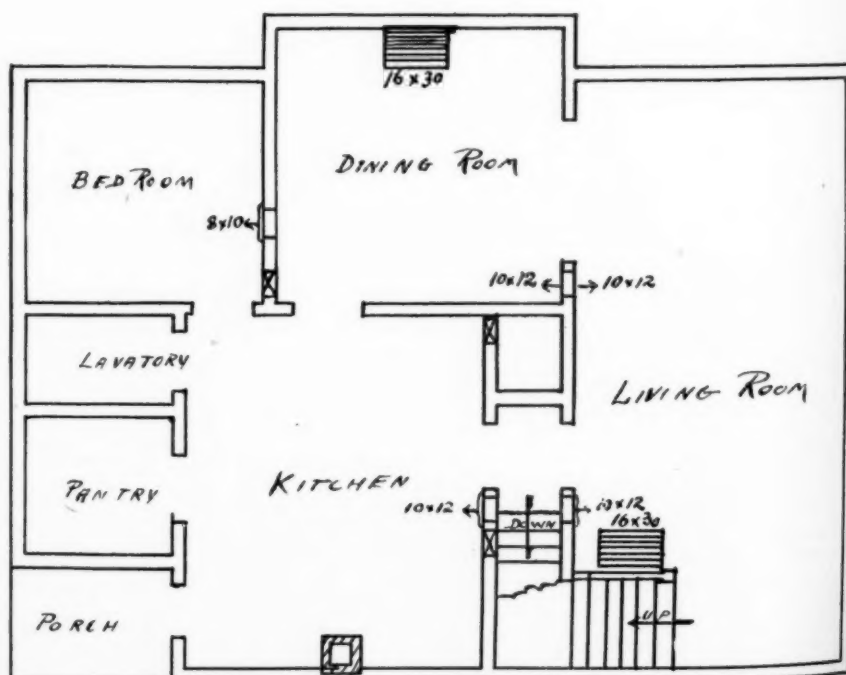
*Ohio Installer Who Got Contract Was Selling Something Besides Castings, Registers and Pipes*

**W**HEN you make a sale at one stroke of six warm air furnaces to a concern that builds houses for re-sale and get \$26.50 more for

each installation than the low bidder, you must either have some special influence with the buyer, or else you must be able to really "sell" yourself



Basement Plan for Furnace Installation, Planned by Engineering Department of Fox Furnace Company



First Floor Plan



and your knowledge of the furnace business and your efficiency as an installer.

A bank in northern Ohio was building six houses for re-sale. Naturally they wanted to get as much as possible for their money, so they shopped around and succeeded in inducing ten concerns to submit estimates.

Some were high, some were low—too low to make a good job profitable—but these seven bidders, whose estimates were lower per installation than the man who got the contract—and he made the sale because when he presented his bid he also presented carefully executed plans for the six installations, and he went further by explaining the plans, so that the man who gave out the contract could see the reason for placing the registers and cold air faces just where they were on the plans; why the pipes varied in size; why the cold air ducts were run as the plans showed, and so on all the way through.

Now, this banker was a close buyer, and the price of the furnace, rather than its efficiency and lasting qualities, was uppermost in his mind when he first started looking at the estimates.

Bankers have a peculiar way about them, of wanting business transactions on paper. If you wish a loan from a bank, the banker

wants a piece of paper with exact specifications written out in full, and the heating plans were so carefully gotten up, so business-like, that the banker even though buying on a competitive basis, paid a dealer exactly \$26.50 more per furnace than the competitors with the "hit and miss" plan of engineering.

The quicker furnace installers will rid their minds of the delusion that all they have to sell is so many hundred pounds of castings and so many feet of registers and so many registers, the quicker will they also place their business on a profitable basis.

The furnace installer who really serves his trade, sells something besides castings, sheet metal and registers. He sells his knowledge of these items; he sells his experience as an installer; he sells his efficiency as a designer of heating plants; he sells his services as purveyor of healthy heat.

And with all due respect to the man who may have made money doing low-priced work, the furnace industry will never become the important industry it might be and ought to be, until a large number of furnace installers get away from the idea that the only way to sell a "furnace job" is to quote the lowest price.

The real successes in the warm air installation business are those

who sell heating plants and know enough and have backbone enough to demand a fair price for what they know about installations and for their efficiency as installers.

The plans shown in the accompanying illustrations were prepared for the Ohio installer mentioned in the foregoing by the engineering department of the Fox Furnace Company.

### How Many Opportunities Do You Make Each Day?

Time is opportunity. Time wasted is opportunity lost. Convert minutes into small opportunities; roll sixty of these into one and you have one hour-opportunity; twenty-four of these are presented to you each day. If you use them to the best advantage, fine! If not, they return to eternity never to come again.

### Believe Us "L. Z!" We're for You

We thank you, "L. Z."

You men who are pushing sales all day know the satisfaction derived from a successful hard day's work. So do we "pen pushers," and nothing gives us more satisfaction and makes us want to work harder than ever than to realize that our efforts have been the inspiration which produced the following poem:

(Parody on Longfellow's Poem "Children.")

Come to me, Oh ye people.  
As I have a word to say;  
And the questions that perplex you  
Shall be answered right away.

Ye open the pages of the Artisan.  
The best kind of products to find;  
Where your thoughts are rightly  
guided  
And the firms are always kind.

In their hearts are deeds to be accomplished;  
In their thoughts the good words flow  
As in business or in pleasure,  
They make the home fires glow.

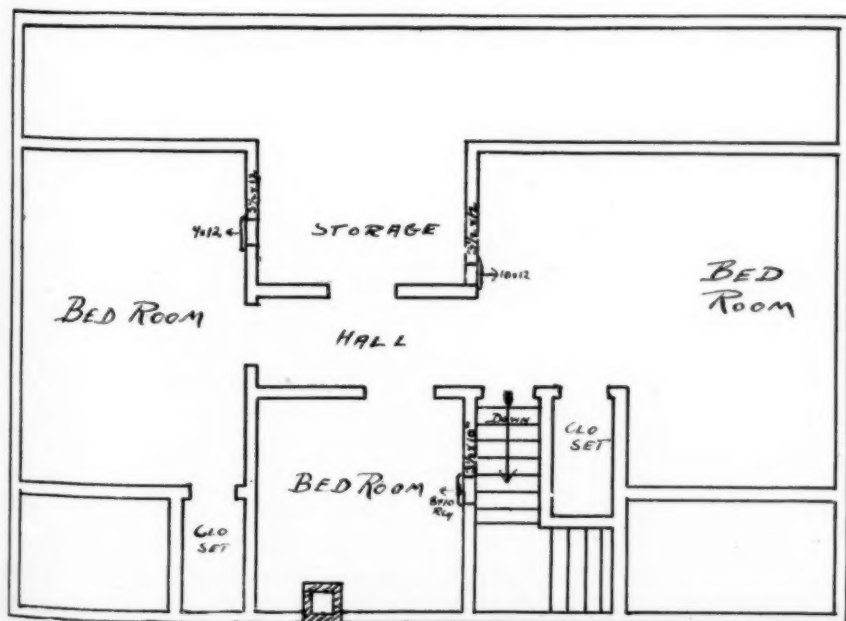
Oh, what would the world be  
If the Artisan were no more?  
We should dread to see the mail man  
Come to our front door.

What the workman is to the master,  
With tools and skill to work,  
Ere his sweet and tender nature  
Has been hardened till he shirk.

That, to the world is the Artisan;  
Through it we feel the light  
Of a brighter and sunnier climate  
Than reaches the ordinary might.

It is better than all the trade papers  
That ever were printed or read;  
For it has real live matter,  
And to fame many has led.

—L. Z., Peoria, Illinois.



Second Floor Plan.

## G. E. Kilbourn Describes Installation of Furnace in Two-Story Residence

*This Installation Plan Shows How Cold Air Passing Down the Open Stairs Is Eliminated.*

THE article herewith is a description of a 2-story warm air furnace installation in which the air from the second floor is returned by placing 4x16-inch baseboard vents, thus venting the return air down the studding space and connecting with the first floor returns.

The installation was planned and the descriptive matter was written

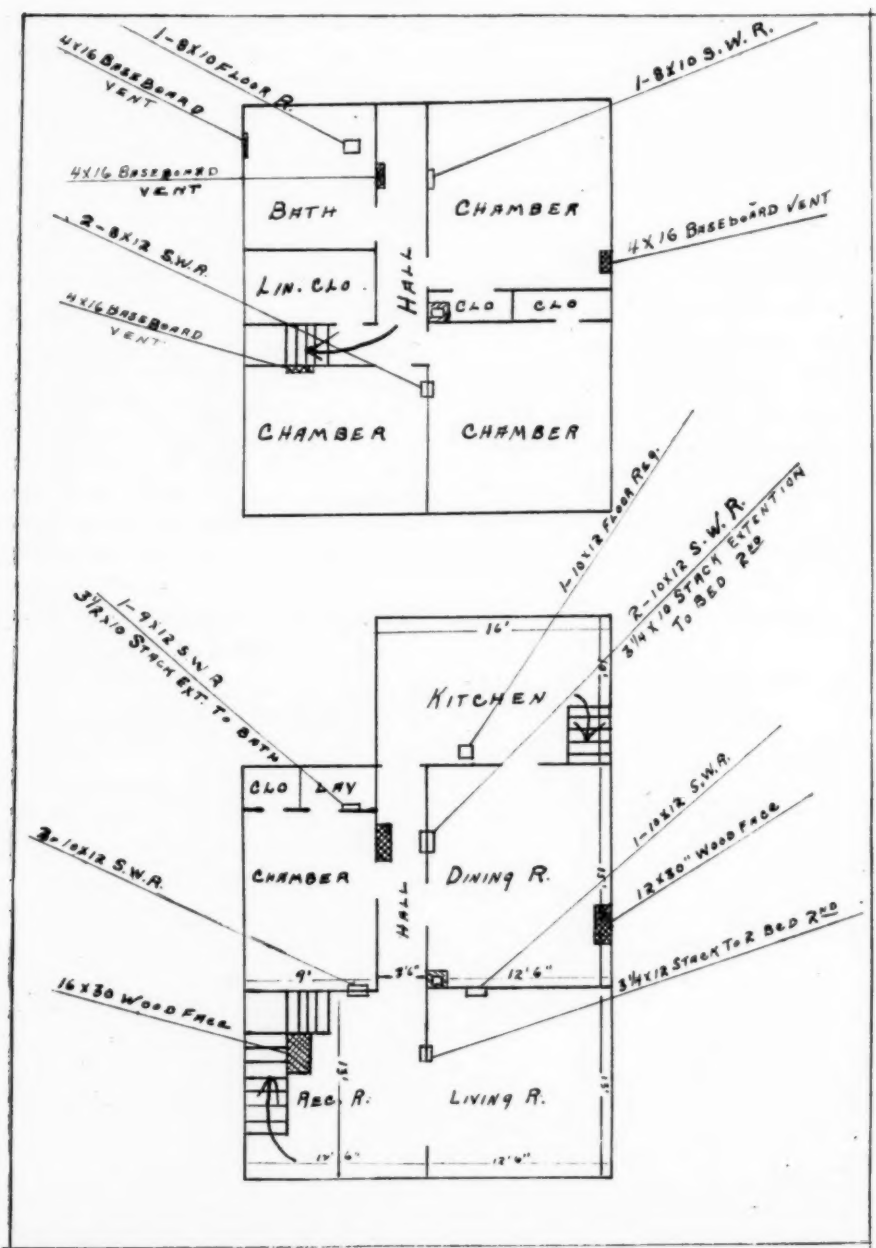
by G. E. Kilbourn, of the Engineering Department of the Homer Furnace Company.

The accompanying illustrated heating plan for a furnace installation is an ordinary or typical plan. The only special feature is that we return the air from the second floor to the furnace by placing 4x16-inch baseboard vents, thus venting return airs down the studding

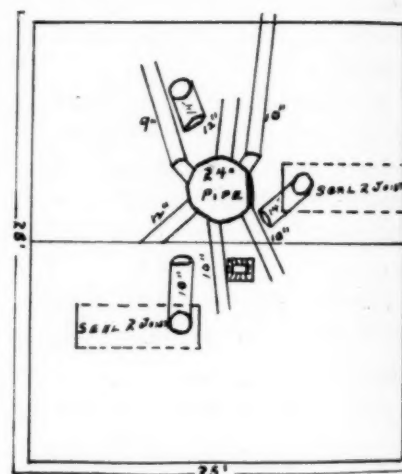
space that connects with the return air from the first floor, except the bath on the second floor, which is vented up. This eliminates the cold air from passing down the open stairs to the first floor and at the same time assures positive heat in all rooms vented as above mentioned.

We are placing a 24-inch firepot furnace for this installation.

We are taking off one 9 inch, three 10 inch, and two 12 inch warm air runs. One 12 inch runs to the partition between the reception room and the bedroom using 10 by 12-inch side wall registers for bedroom and reception room. One 10 inch run is to the living room with a 10 by 12 inch side wall register. One 10 inch run is to the kitchen with a 10 by 12 inch floor register. One 12 inch run is to a double side wall register in partition between the hall and dining



First and Second Floor of Furnace Installations, Showing Locations of Registers and Cold Air Faces



Basement Plan

room with a 10 by 12 inch register in each room, a 3 1/4 by 10 inch stack extension to the bedroom on the second floor with an 8 by 10 inch side wall register. One 9 inch run goes to the partition between the lavatory and bedroom with a 9 by 12 inch side wall register in the lavatory and a 3 1/4 by 10 inch stack extension that gives the bath on the second floor a floor register 8 by 10 inches. A 10 inch run goes to the partition between the living room and reception room using a 3 1/4 by 12 inch stack to a double stack head on the second floor for the two front bedrooms with 8 by 12 side wall registers.

We are returning one 18 inch and two 14 inch cold air pipes to balance the circulation.

This plan gives each room on the first floor and second floor a warm air register

## Two Warm Air Furnaces Deliver 450,000 Cubic Feet Per Hour in This Installation

*Rug Cleaning Establishment Has Unique Example of Warm Air Heating Work*

IN THE accompanying illustration is shown an installation of a twin-battery of warm air furnaces, connected with a "Uniblade" blower, the plant being used for drying purposes in a rug cleaning establishment and is proving a decided success.

The plans for the installation were made by the Engineering Department of Richardson & Boynton Company and also show a single furnace also provided with a fan, which heats the repair and cleaning rooms and the offices, the diagrams of which are shown herewith.

The description of the installation, as furnished by a member of the Company's engineering staff, is as follows:

"The drying system in the above installation is independent of the heating system. The former consists of a heater room in which two No. 1938 "Perfect" Positive Heaters in brickset form are installed. To the left of the heaters is the blower room in which a No. 6 Autovent Uniblade Blower is driven by a 6 horsepower electric motor. The cubical capacity of both dry rooms is approximately 15,000 cubic feet. A 36 inch Autovent Propeller Fan is installed in the larger dry room near the partition which separates both rooms, which is also shown in the illustration.

"The air is taken through a duct from the roof to the blower room. This duct has a by-pass for recir-

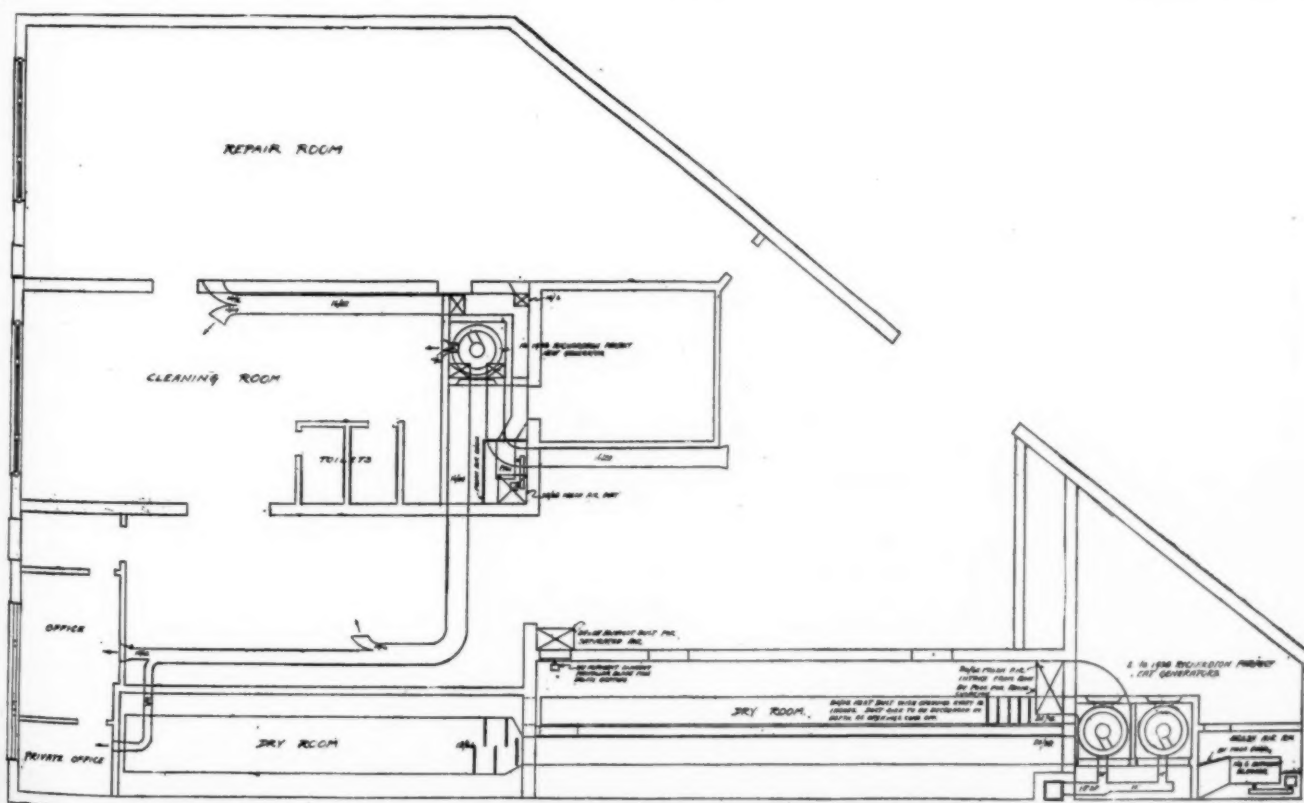
culating the air from the large dry room. From the blower room the air is blown through the heaters and into two large ducts, one for each dry room. These ducts are in a deep pit and below a grating which forms the floor of the dry room. The air is delivered into the dry room through narrow openings in the duct arranged 12 inches apart so as to blow up between the rugs. After the air becomes saturated and heavy it is drawn out of the rooms by the propeller fan and exhausted to the roof.

"The system is figured to deliver a complete change of air to the dry rooms every two minutes or 450,000 cubic feet of air per hour."

### Midland Furnace Club Will Hold Annual Meeting Tuesday, December 30th

The Annual Meeting of the Midland Furnace Club will be held Tuesday 2 P. M., December 30th, at the Congress Hotel, Chicago.

The Western Central Stove Association will hold its annual meeting in the forenoon of the same day, also at the Congress Hotel.



Plan of Warm Air Furnace Installation with Blower Fan for Drying Purposes in Rug Cleaning Establishment



## How Curtis Installed a Thirty-Inch Furnace in a New House Near Cleveland, Ohio

*He Made Sure That There Would Be Plenty of Cold Air for the Furnace to Heat*

IN the accompanying illustration is shown the first floor plan for the warm air heating system installed by H. A. Curtis & Company, Berea, Ohio, in the new residence of Lee E. Ives, also of Berea. The picture of Mr. Ives' residence appears on the next page, together with photographic views of some of the pipings in the basement. Another picture shows the "staff" of Curtis & Company, Mr. Curtis being the gentleman with his hair nicely parted in the middle. His two sons are standing with him, one on each side, in the rear rank. The group was photographed in front of the shop.

The furnace was a 30 inch Moncrief with a 56-inch casing, and was located right in the center of the basement; as indicated in the floor plan, there are three cold air ducts, the two main pipes being joined with a "Y" approximately ten feet from the furnace casing.

Below the large living room there is an "amusement room," 14x24

feet, in the basement, the laundry being located below the kitchen; a fruit room is partitioned off below the dining room, with outside corner next to the laundry section.

The following additional details are given by H. A. Curtis:

There are two 16x30" oak grills in the living room. One has an 8x35" shaft to the furnace with an 18" round pipe to the boot at the bottom of the furnace.

The other one has an 8x35" shaft up to the point where the hall shaft entered from a 14x27" grill. Here the shaft is enlarged to a 22" pipe to the boot at the bottom of the

furnace.

In the dining room there is a 16x30" grill with a 10x32" shaft running with the joists to an 18" round pipe to a boot at the bottom of the furnace.

All shafts are free from traps and there is a cleanout below each grill. All seams and joints are made air tight with asbestos paper in order to insure a heating plant free from dust and dirt. The water pan at the bottom of the furnace is connected with a water pipe and valve.

The register and pipe sizes are as follows:

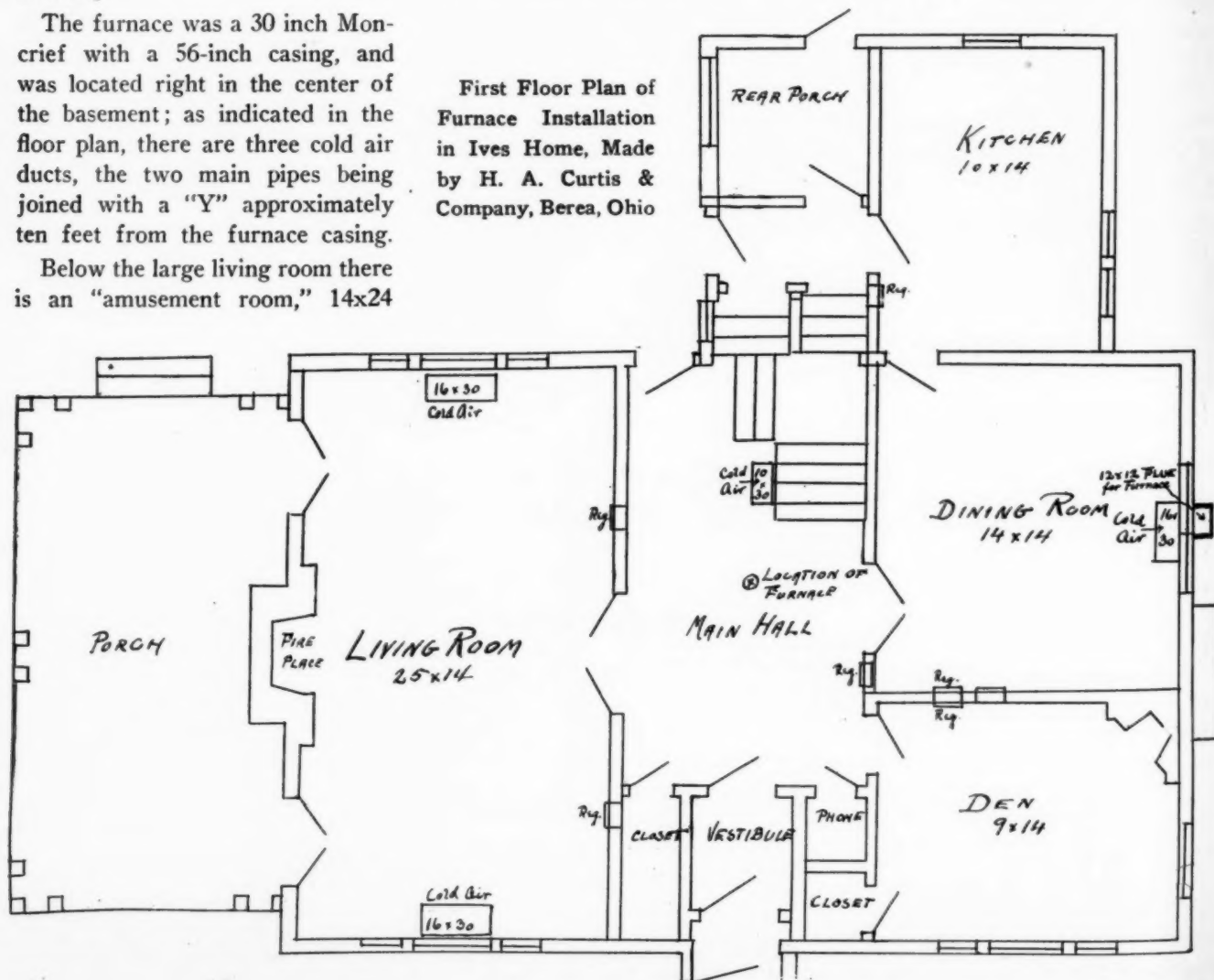
Living room—Two 10x12 brass base registers with 10" pipe each.

Dining room—One 10x12 brass base register.

Hall—One 10x12 brass base register.

Library—One 10x12 brass base register.

First Floor Plan of Furnace Installation in Ives Home, Made by H. A. Curtis & Company, Berea, Ohio





Kitchen—One 10x12 Oxidized copper base with 10" pipe.

Rear hall—One 10x12 Oxidized copper base with 10" pipe.

Master bedroom—One 8x12 brass base register.

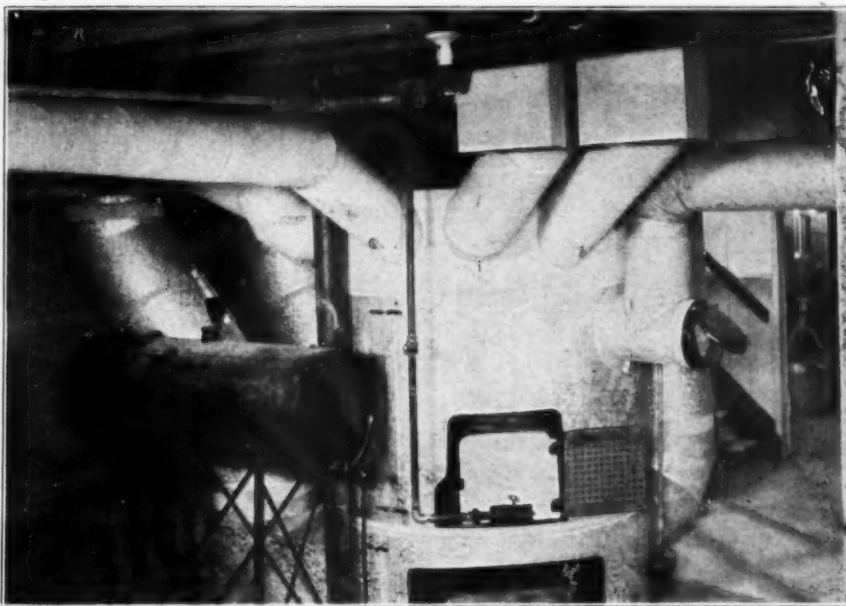
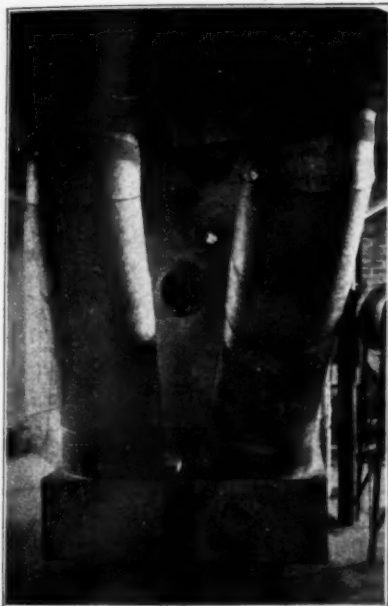
Bath Number 1—One 8x12 nickel plated base register.

Master bedroom and bath Number 1—One No. 8 double wall pipe with 9" pipe in basement.

Dressing room—One 8x12 nickle plate floor register and border.

Sewing room—One 8x12 brass base register.

Dressing room and sewing room on one No. 8 double wall pipe with 10" pipe in basement, the riser has

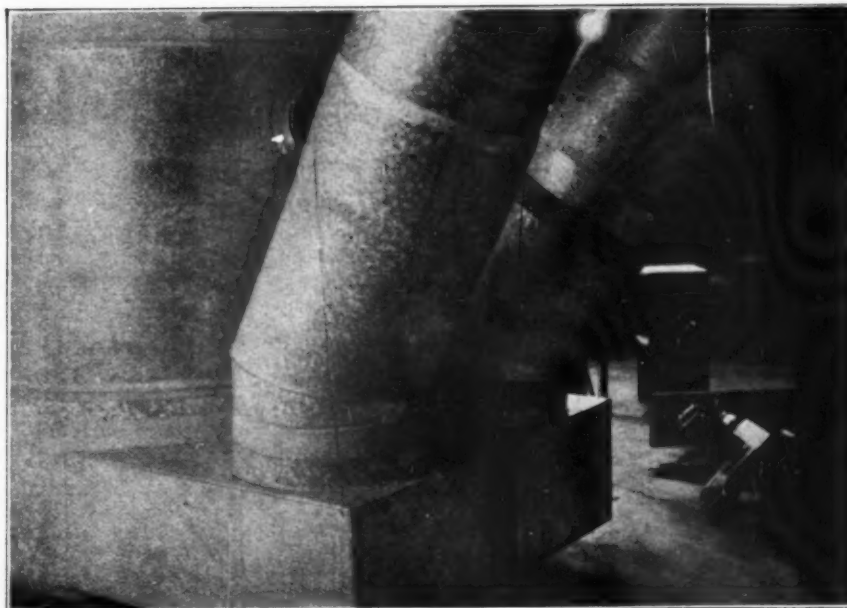


Top—New Home of Lee E. Ives, Berea, Ohio

Second Row—Two of the Cold Air Ducts

Front View of Furnace

Bottom—Another View of Cold Air Ducts



a dividing piece in center.

Guest room—One 8x12 nickel plated base.

Bath Number 2—One 8x12 brass base register.

Guest room and bath Number 2—One No. 8 double wall pipe riser with 9" pipe in basement.

Girls' room—One 8x12 brass base register on a No. 8 double riser with 9" pipe.

Boys' room—One 8x12 brass base register.

Each warm air pipe has damper and is covered with asbestos paper. Each is run to give the most head room and still maintain a constant rise to the boots.

## Experience of A. H. Robinson Shows What Can Be Done With Real Estate Operators

*He Sold Them on the Idea That a Better Heated  
House Will Yield Him a Greater Profit*

A. H. ROBINSON is manufacturer of steel furnaces and auxiliary gas furnaces in Cleveland, Ohio. His experience in dealing with real estate men and building contractors is of interest to every furnace installer, because he has demonstrated the practicality of selling them on a "quality" basis. Mr. Robinson writes:

My furnace built expressly for gas, and connected to the coal furnace.

The cold air intake is so arranged that by raising slides, cold air may be admitted to either or both furnaces.

The heat distributor is a fan, run by an electric motor. It is installed on top of the coal furnace. Heat is drawn from the furnace and forced into the different pipes by this heat distributor.

With this system, no pipe is too long. For example, we installed one of our heat distributors in a billiard room 20 x 100 feet. The register is 91 feet from the front entrance. The furnace is set 2 inches above the floor level of the store because there is no basement in this building, and the furnace works perfectly—no floor draft and plenty of heat anywhere in the whole room.

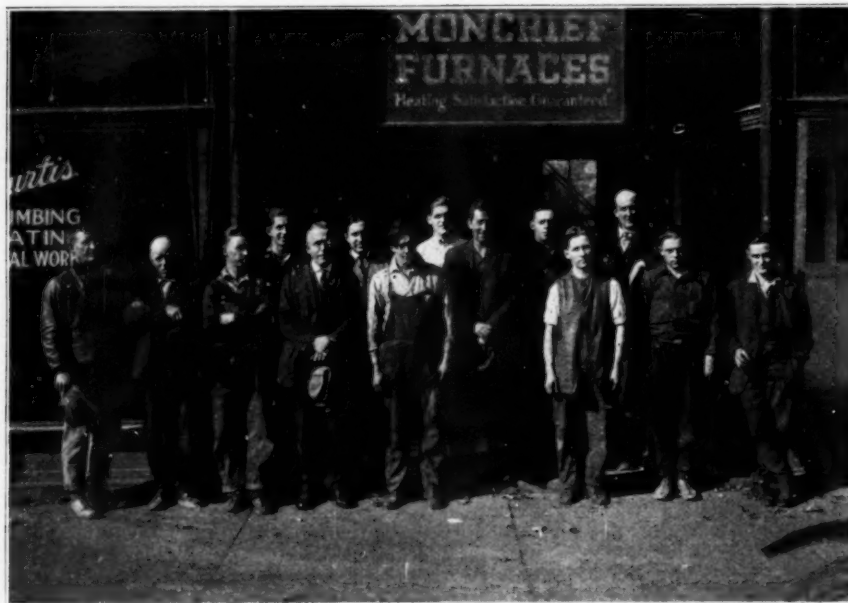
Perhaps an even finer example of the efficiency of this distributor may be found in a furnace installed by our Akron dealer.

The furnace is installed in a house in the rear, and heat is conducted through pipes underground and 8 feet long, to a storeroom in front. It heats the house and store efficiently.

We think that the building contractor ought to be willing to pay more money for an efficient heating system. He can sell his house quicker, for the heating system is really the most important thing in the house.

The great trouble in the past has been that we furnace manufacturers and dealers have allowed the building contractors to tell us what to do.

Now let's tell the building contractors what we know—what they should install to have a well-heated and well-ventilated house.



H. A. Curtis and His Staff

### Keep Boosting

Boost, and the world boosts with you,  
Knock, and you're on the shelf,  
For the world gets sick  
Of the one who'll kick,  
And wishes he'd kick himself.

Boost when the sun is shining,  
Boost when it starts to rain,  
If you happen to fall,  
Don't lie there and bawl,  
But get up and boost again.

Boost if your cause is lively,  
Boost if it's dead as sin;  
No battle is won  
By the one who'll run,  
So stick to your job and win!

Boost for your firm's advantage,  
Boost for the things sublime;  
For the chap that's found  
On the topmost round  
Is the booster every time.

—Fitting Remarks.

Not so long ago we put on the market a new auxiliary gas furnace and also a heat distributor.

Most building contractors will not pay from \$175.00 to \$200.00 more for a heating system, unless the salesman can show that it is to their advantage. Many tried to discourage us in the sale of this extra equipment by saying that we could sell it to the owner only.

Now, we not only have the home owners interested, but also contractors, architects and building engineers. Real estate men are getting information on this equipment to help them in the selling of houses.

Our system consists of an auxil-



## Three-Story Factory Building Is Perfectly Heated With Warm Air Fan System

*Offices and Work Rooms Were Thoroughly Comfortable With Thermometer at 12 Below*

THE accompanying illustrations show "front rank" heating systems in the Langenberg Manufacturing Company offices and factory building at 4519-33 North Euclid Avenue, St. Louis, Missouri.

The entire building is of reinforced concrete construction, with approximately 80 per cent of its outside wall exposure being glass; with ceiling heights of 13 feet, 11 feet and 10 feet respectively. By referring to the drawings, it will be noted that the general offices, which are on the second floor, are heated by two No. 160 "front rank" steel

furnaces set below a twin canopy with a fan connection.

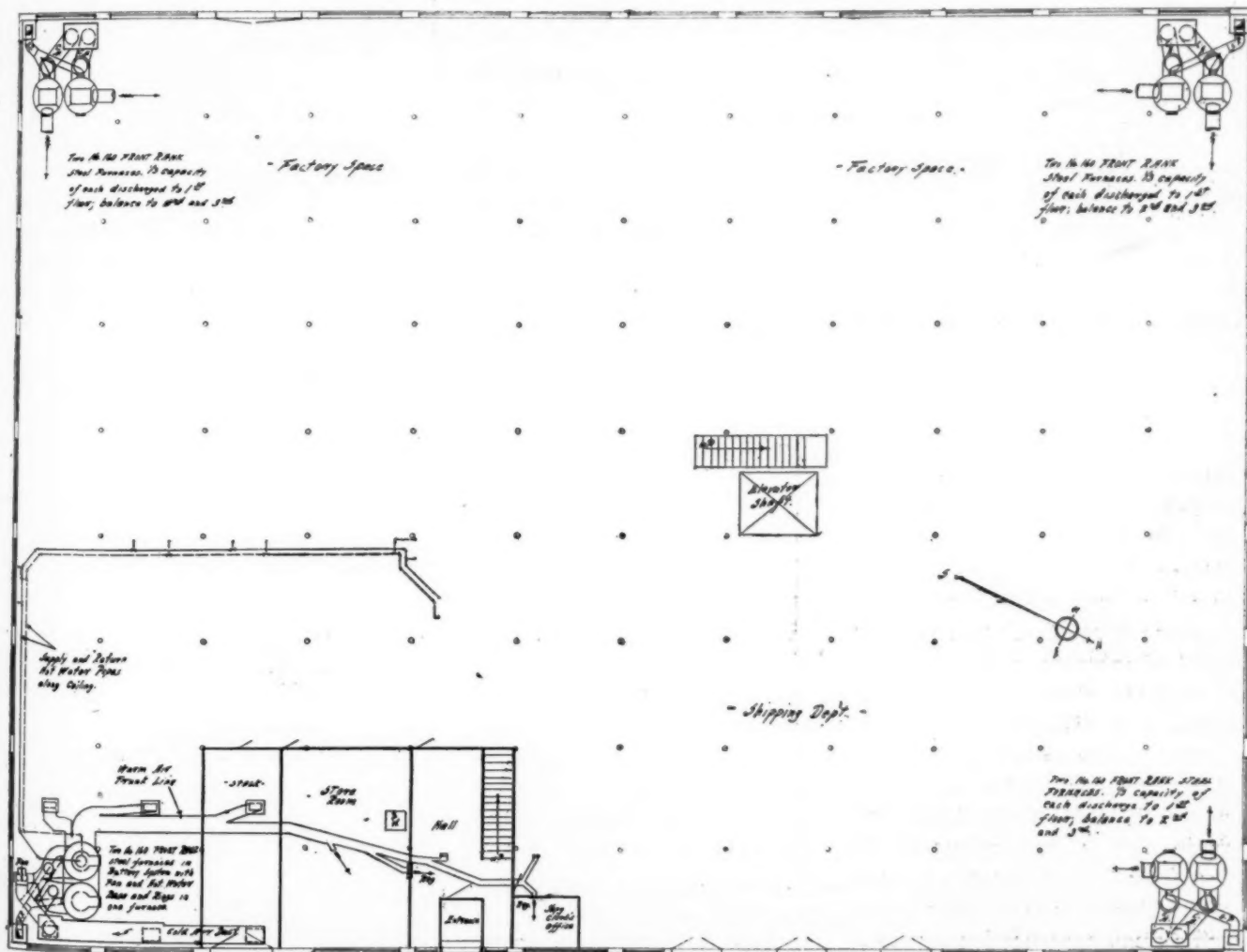
It was decided to heat the consultation room, kitchenette, and the ladies' and men's lavatories from these same furnaces. To meet this condition, a "front rank" hot water base and two rings were placed in the combustion chamber of one of the furnaces, with hot water pipe supply and return connections to hot water radiators in each of the above spaces, an expansion tank being placed in the men's lavatory.

It will be noted that one long trunk line was installed to convey

the heated air to the three register openings in the general office, one in the engineering room, and one in the display room; together with separate pipe take-offs to heat the first floor store room, hall, and the shipping clerk's office.

The cold air supply to the furnaces is taken from the most exposed portion of the general offices, which is at the East wall, there being considerable glass at this point. The system is arranged to operate either by gravity circulation or fan pressure, by-passes being placed in the cold air pipes and regulated accordingly.

One of the outstanding features of the installation is the fact that it is not necessary to operate the fan continually, as the flow of heated air through the long trunk line circulated freely when the furnaces were delivering their maximum efficiency; this being due to the sur-



First Floor Plan of Warm Air Heating System that Heats Three Story Factory, 150x200 Feet, of Langenberg Manufacturing Company, St. Louis

plus area of the cold air intakes in excess of the combined areas of the warm air outlets, elevation of the long trunk line, etc. A Minneapolis Heat Regulator with thermostat installed at the breathing line in the general office is used in connection with the heating apparatus for au-

capacity of each heater is discharged into the first floor and the balance to the second and third floors, warm air take-offs to the second and third floors being directly above the top of each furnace.

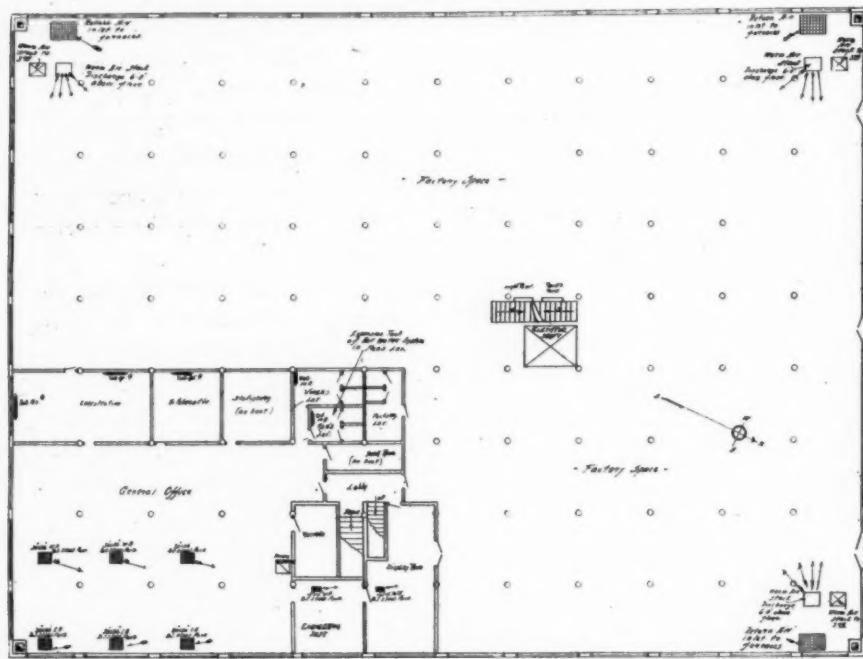
To heat the third floor area above the general offices, a separate fur-

dent's office. A propeller fan in the cold air box is also used to accelerate the flow of air through the warm air duct, and to insure positive circulation in the spaces to be heated. The installations for factory spaces were not designed to heat the entire factory to the same temperature as the general offices, however, the combined capacities of all of these units have heated the factory spaces on the three floors to a temperature comfortable enough for working purposes.

The building is 150x200 feet, and as noted, has three floors, respectively 13, 11 and 10 feet high.

### Gravity Oil Burner Not Finding Much Favor

According to the answers found on AMERICAN ARTISAN questionnaire sent out to furnace installers, these men are not favorably impressed with the gravity oil burner. Of those who returned the questionnaire 72 per cent said they had had no experience with gravity oil burners. Of the remaining 28 per cent who had used them not one had a good word to say for the gravity burner. The descriptive invectives used were enlightening to say the least. Here are a few of them: "Bum for this climate. They stop up after a while and produce an odor." "No good."



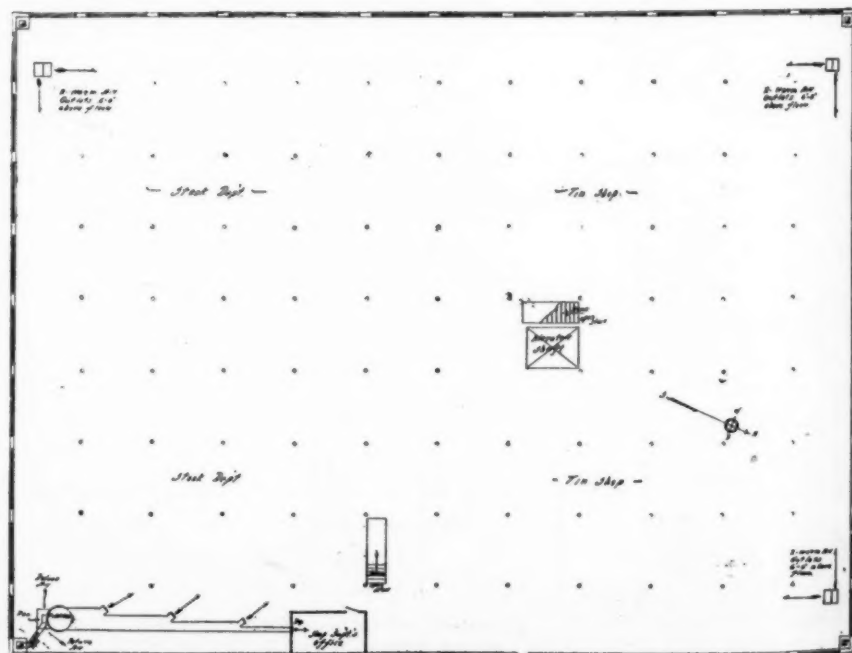
Plan of Second Floor

tomatic control of temperature, drafts and smoke check.

The system has heated all spaces, to which they are pipe connections, to a comfortable temperature in severest weather. This also applies to the hot water layout for heating the lavatories, consultation room, etc. During the severe cold weather experienced in St. Louis the past January, when the temperature dropped to 12 degrees below zero, no difficulty was experienced in keeping the temperature of the offices to a comfortable degree. Calculations were based on a 70 degree inside temperature with outside at 10 degrees below zero when the system was designed.

The factory spaces on the first, second and third floors are heated by six No. 160 "Front Rank" furnaces, two in each corner of the first floor. Each furnace is operated independently of each other, and a small propeller fan is used in each cold air duct to accelerate the flow of air. One-third of the ca-

nace was installed, as will be noted from the plans. This unit has one long warm air duct with three openings to distribute the air into the stock department, and one warm air outlet into the shop superinten-



Plan of Third Floor

# Professor Wines of U. of W. Broadcasts Talk on How to Save Fuel Bills by Correct Furnace Firing\*

*Says a Few Extra Dollars Invested in First Cost Will  
Insure Better Satisfaction During Entire Life of Plant*

AT this season of the year in this climate the subject of the economical management of the house heating plant is of such great importance to so many people that it needs neither apology nor introduction. The proper point at which to begin economical management is the selection of the heating equipment itself. But the majority of householders are confronted by the problem of operating plants already installed, and must do the best they can with what they have. It is to this majority that this talk is addressed.

I cannot, however, pass over this opportunity of making an observation about the importance of the grate. In fact, I consider this of so much importance, that, if I were about to purchase a new heating plant, I would be loath to consider any warm air furnace that did not have a grate of triangular bars extending from front to rear of the fire pot. My preference for this type of grate is based on my experience in the personal operation of eleven house heating plants. With this grate the removal of ashes from the entire grate surface necessitates only a little gentle shaking.

For fuels that clinker badly such a grate is almost indispensable. Last winter I burned on a one-piece, rotating grate, a coke which clinkered badly, and it was necessary to remove the clinker through the fire door, an operation which consumed a great deal of time, nearly put out the fire, and was never done properly or thoroughly.

I had previously burned this same variety of coke, on a grate of the type I prefer, without any such difficulty whatever. The clinker was caught between the rotating bars, crushed and dropped into the ash pit. Seldom was it necessary to use the poker.

## Importance of Fire Pot Size

Another important point in the selection of a heating plant is the size of the fire pot. *This should*

*This talk by Assistant Professor of Mechanical Engineering W. E. Wines, on the management of the home heating plant was broadcasted from the University of Wisconsin station (WHA) as one number of the Extension Division's educational program.*

*Professor Wines is in charge of the vocational course in steam engineering and heating and ventilating offered by the Correspondence Study Department of the University.*

*be of ample depth and diameter for the house to be heated. A few extra dollars invested in the first cost of the furnace will save both fuel and attendance during every year of the plant's life, and give the owner a plant that is much more satisfactory to operate. During one year that I lived in Oak Park, Illinois, I had to fire a boiler that had a shallow fire pot. It was so shallow, in fact, that I could not keep a sufficient layer of ashes on the grate, a layer of burning coal above that, and a layer of fresh coal on top, which is the proper method of fir-*

ing hard coal. This plant was a continual nuisance. Either I had so little ash and so much draft that the fire burned itself out; or I had so much ash and so little fuel that the fire died out. The house was usually either too hot or too cold, and the fuel bill was excessive.

Although the reconstruction of the heating plant, even if desirable, might entail an unwarranted expense, the selection of suitable fuel is a question which presents itself at least once each year. It is a matter in which the purchaser has some choice, and in which he may exercise some judgment. Not so many years ago wood was plentiful in Wisconsin, and correspondingly inexpensive, but that condition has passed, and the selection of fuel must now be made in most cases from the various varieties of coal or its by-products. The first which suggests itself is naturally that good old stand-by, hard coal, or, as it is technically called, anthracite. Then we have soft coals of various grades, which are technically divided into semi-anthracite, semi-bituminous, and bituminous. Bituminous coals may be roughly divided into Eastern and Western coals, the Eastern Coals being generally more desirable. But the average purchaser of a few tons of coal is not, and has no reason to be, interested in all the various classifications of the chemist and geologist. He will find in his market only a few of the many varieties, and he really needs to know little more of technical classifications than there are two general classes of coal, namely "hard" and "soft." As "the proof of the pudding is in the eating," so the real test of a coal is in the burning. The pur-

\*"Firing the Home Furnace" is the subject of a talk by W. E. Wines, Assistant Professor of Mechanical Engineering, University of Wisconsin Extension Division, broadcasted from the University of Wisconsin station (WHA) and which brought many requests from home owners for written copies.



chaser of ten tons would not be warranted in going to the expense of a special chemical or heat analyses.

#### Uses of Non-Combustible Refuse

Every known variety of coal has been tested and analyzed, many thousands of these analyses having been made. It has been found that all coals contain only three different sorts of material, or that all of the compounds of which coal is composed may be grouped in three classes. The first of these to be considered is the ash. The ash is the non-combustible part of the coal. It furnishes no heat. It is refuse for which the purchaser pays as much per pound as he pays for the rest of the coal. Viewed in this light the ash is an undesirable commodity—the less of it the better. Nevertheless the ash has its uses, and a coal entirely free from ash would not be desirable. A layer of ash between the grate and the hot fire above serves to protect the grate from intense heat, thus prolonging the life of the grate. I have seen it stated that petroleum coke, which contains almost no ash, will overheat the grate, and ruin it. But I have found petroleum coke to be a highly satisfactory fuel and have had no trouble from overheated grates. Another useful function of a blanket of ash on the grate is that it serves to distribute the air evenly to the fuel, and to break up the air flow into fine streams, thus causing more thorough mixture of the air with the gases rising from the fire. This item of proper mixture is essential to good combustion. To sum up this question of ash in the coal I may say that a little ash is desirable, but that the quantity should not be over about five per cent.

The second constituent of coal to be considered is what the chemist calls "fixed carbon." The gaseous matter in coal contains much carbon, but this carbon is combined with other chemical elements forming new compounds which are entirely different from the "free" car-

bon. Free carbon has a very high heating value.

One pound of carbon when properly burned liberates or generates 14,500 B.t.u. This is sufficient heat to increase the temperature of  $7\frac{1}{4}$  tons of water one degree. Or it would raise the temperature of 1,000 pounds of water  $14\frac{1}{2}$  degrees, or the temperature of 100 pounds of water 145 degrees. In order to obtain this quantity of heat it is absolutely necessary that sufficient air be supplied to the fire. If insuffi-

*"It is this tar which causes the chief difference between hard and soft coals; between various varieties of soft coals; which causes the smoke and soot when soft coal is burned; which is the most difficult part of the coal to burn properly and completely; and which is the source of great loss of heating value when not burned completely."*

cient air be supplied—thus causing what the chemists call "incomplete combustion"—the carbon will be completely consumed but one pound of it will yield only 4,400 B.t.u. This difference of 10,100 B.t.u. means a loss of 70 per cent of the heating value of the free carbon.

The third important constituent of coal is the "volatile matter" or "volatile hydrocarbons." But for the layman whose chief interest in coal is to burn the least quantity of it with the least smoke and waste, this volatile matter may all be included in the simple word "tar" or "tarry matter." It is this tar which causes the chief difference between hard and soft coals; between various varieties of soft coals; which causes the smoke and soot when soft coal is burned; which is the most difficult part of the coal to burn properly and completely; and which is the source of great loss of

heating value when not burned completely.

Anthracite coal contains on an average less than 10 per cent of volatile matter. The better grades of soft coal—the semi-bituminous varieties—such as the Pocahontas of West Virginia, contain about 15 to 20 per cent; while the true bituminous coals, which include those from Pennsylvania, Ohio, Indiana, Illinois, Iowa, etc., contain from 25 to more than 40 per cent volatile matter.

Anyone who has set fire to a piece of tar paper or to a piece of patent roofing, which is saturated with asphaltum, knows that a very considerable amount of smoke is given off. This smoke is the tarry matter which is volatilized, or vaporized, by the heat of the burning paper and passes off unburned. Pure carbon burns without smoke. In fact, it is impossible to burn carbon and make smoke. Hard coal makes no smoke because, except for the ash, it is nearly all free from carbon. The small amount of volatile matter which it contains is burned as soon as it is liberated from the coal. The chief precaution in burning hard coal is to see that it is supplied with sufficient air to cause complete combustion, otherwise the 70 per cent loss which I have mentioned may be caused. Do not misunderstand the term "complete combustion" to mean that all of the coal must be burned. All of the coal may be burned and combustion may be incomplete. Complete combustion means that the maximum amount of air has been utilized and the complete or full heating value of the fuel utilized. Heaping too much coal—I refer now particularly to hard coal, coke, or other fuel consisting mostly of free carbon—on a hot fire and then closing the drafts will almost certainly result in incomplete combustion with its attendant serious heat loss. On the other hand, it is equally important not to admit *too much* air because the excess air carries costly heat up the chimney and scatters it broadcast.

A hard coal fire, when properly managed, is almost completely covered with short, pale blue flames. These flames may be invisible over a hot fire; but if they are absent from a fire covered with fresh coal, that is evidence of incomplete combustion. Under these conditions the pungent odor of coal gas is usually much in evidence, and often the whole surface of the coal bed will burst into blue flame when the firing door is opened. This is a sure sign that insufficient air has been admitted.

#### How to Burn the Tarry Matter

When a piece of soft coal is thrown on a hot fire, the heat of the fire immediately volatilizes some of the tarry matter, exactly as in the case of the tar paper already mentioned, and this will appear as smoke and pass off unburned unless the conditions in the fire pot are such as to prevent it. When I remind you that this tar may constitute 35 per cent or more of the weight of the coal, no argument is needed to prove that it should be burned. After a time all of the tar will have been driven off, or distilled, and the residue is coke.

To burn the tarry matter, the following conditions must be fulfilled:

1—The volatile matter must be distilled off slowly.

2—The volatilized or gasified tar must pass over or through a bed of hot, burning coke in order to heat it to ignition temperature.

3—Sufficient hot air to insure complete combustion must be admitted.

4—The heated gases and heated air must be thoroughly mixed.

5—There must be sufficient space to allow combustion to take place before the burning gases come in contact with the relatively cool heating surface of the boiler or furnace.

In the great majority of house heating plants, those being not especially designed for the use of soft coal, these necessary conditions can not be met. In such a plant the fifth condition, that of sufficient space, is always lacking, particularly so in cold weather, when the

rate of combustion is high. The third condition, that of sufficient hot air to insure complete combustion, is met only imperfectly. The only provision for air in addition to that coming through the grate is usually a little register in the fire door which admits cold air. And the fourth provision, that of thorough mixture, is met only by accident. The householder must not expect to burn soft coal smokelessly in a furnace designed for hard coal. But, in spite of these handicaps, by using a little care and taking a little extra trouble, he may materially reduce the amount of smoke from his furnace and thereby keep in his own pocket some of the money that would otherwise find its way to the coal dealer.

I know of no method of starting a soft coal fire without making smoke; but by using only a little coal, the quantity to be determined by the judgment of the operator, and allowing this to become thoroughly coked before adding more coal, the smoke may be held down to a minimum. Having secured a bed of incandescent coke, rake this to one side of the grate and place fresh coal on the uncovered part of the grate. It will probably not be possible to get one half of the grate perfectly clean, but do the best you can.

#### What the Introduction of Air Above Grate Does

The object is to have a bed of burning coke on one side of the fire pot and a pile of fresh coal on the other side. The heat from the coke will gradually distill off the tar and ignite it. The air passing up through the grate will be heated to a high temperature and be more or less mixed with the tarry vapor. If sufficient air is introduced and thorough mixture takes place, smokeless combustion will result if only there is sufficient space, which is practically never the case. The hot flames strike the relatively cool surface of the boiler or furnace and smoke and soot are formed. It is not likely that sufficient air will pass up through the grate to burn both the coke and the volatile mat-

ter, in which case it may help to introduce some air through the fire door. But be careful not to let in too much, because this is cold air, and too much of it may lower the temperature below the ignition point. If the admission of air above the fire increases the flame, then it helps; if it increases the smoke, then it hinders. When the coal is entirely coked, it may be spread evenly over the grate, although this is not always necessary, and allowed to burn until ready for the next charge of coal, which should be handled exactly as the first.

#### Learning to Fire the Furnace Correctly

To one who has never tried it, this method of burning soft coal may appear to involve considerable extra trouble and labor. Such, however, is not the case. Some little judgment and experience are needed to estimate the quantity of coal to fire each time in order that the fire may be in proper condition to receive the next charge at a convenient time. But I secure very much better results than by spreading fresh coal over the entire fire surface; I burn less coal, have a cleaner furnace, smoke pipe, and chimney.

Now to recapitulate: Hard coal and coke, which consist mainly of free carbon with very little volatile matter, should be fired evenly over the surface of the fire. Care should be taken to admit sufficient air to insure complete combustion, otherwise carbon monoxide, which is an invisible, combustible gas of high heating value, will escape through the chimney. It may or may not be necessary to admit air over the fire.

In burning the better grades of soft, or semi-bituminous coal, such as Pocahontas and New River, which are fairly low in volatile matter of a comparatively unobjectionable character, the alternate method of firing already described should be followed. These coals, by the way, have a higher heating value per pound than anthracite, usually contain less ash, and are on the



whole a satisfactory fuel for house heating plants.

The softer grades of soft coal, or true bituminous coals, should be fired by the alternate method, that is, in a heap on one side of the fire pot, the other half of the pot containing burning coke. Air must probably be admitted through the fire door during the time the tarry gases are being driven off.

Two precautions should be observed in burning any kind of fuel. First, to admit the right quantity of air, neither too little, which causes incomplete combustion, nor too much, which carries heat up the chimney and throws it away.

Secondly, never, if it can be avoided, to stir or poke the fire from the top so as to mix the ashes with the fire. Ashes in the fire may melt, run together and form clinker. All coals cause some clinker, depending largely upon the melting point of the ash. But, with any coal, the more the fire is stirred from the top the more clinker is likely to be formed.

It is unfortunate that manufacturers of house heating furnaces and boilers have not devoted more time and effort to the design, manufacture, and sale of equipment especially adapted to the burning of soft coal. Although some excellent devices are on the market, *the public generally has not been educated to the desirability, in fact, necessity, of special equipment if soft coals are to be burned with real efficiency and economy and with any real approach to smokelessness.*

The great majority of householders are faced with the same problem as I am. In view of the rising price of hard coal, I turn to soft coal to reduce my fuel bill. I must use the furnace which was installed in my house when built and which is not adapted to burn soft coal. I must make the best of what I have until I can afford the installation of a soft-coal-burning outfit. It is hoped that the hints given will be of some assistance to others who are confronted by the same situation.

## Canton, Illinois, Installer Gives Cost on Furnace Job in Five-Room House

*See How Your Figures Compare With His and Whether He Has Everything Included*

EVIDENTLY many installers are awakening to the fact that while price is, of course, an important item in selling, that price must be figured in such a way as to allow for an efficient heating system, or otherwise there will either be no profit or an unsatisfactory job which, in the long run, means loss of both profit and reputation.

Recently we published an article referring to an advertisement of a

figures correspond with those of your own experience:

TO AMERICAN ARTISAN:

In the issue of December 13th, on Page 13, there is an article in regard to an advertisement of the Scovill Company installing a furnace in a five-room house for \$160.00 at a profit.

We are inclosing a copy of the cost of an installation less overhead and profit. This is about as small an amount of material as goes into any job in a five or six room house. We kept track of everything we used on this job, and the material and labor was \$195.99, as follows:

### Cost to Installer

1 23" steel furnace and freight .....	\$114.00
Galvanized iron casing .....	7.20
Smoke pipe .....	2.00
2 12" double head registers and boxes .....	15.52
2 10" floor registers and boxes .....	4.38
13 ft. 10" tin pipe .....	2.73
9 ft. 12" tin pipe .....	2.10
2 10" collars and dampers .....	.98
2 12" collars and dampers .....	1.28
30 lbs. asbestos paper .....	1.50
4 ft. 22" cold air pipe .....	2.60
1 22" cold air boot .....	2.83
7 lbs. galvanized iron for cold air .....	.42
1 cold air face (steel) .....	2.80
1 22" cold air elbow .....	1.94
2 22" collars .....	1.52
3 10" tin elbows .....	.96
3 12" tin elbows .....	1.23
40 hours labor at .75 .....	30.00

\$195.99

Editor's Note: It would seem that the lowest possible price that an installer could afford to ask for such a job would be \$275.00, and he would not make much more than ordinary interest on his investment in that case, receiving nothing for his "knowing how."

Copies in Pamphlet Form of the Standard Code Covering the Installation of Warm Air Furnaces in Residences, can be obtained from most of the furnace manufacturers and also from the following organizations, the offices of which are given:

National Warm Air Heating & Ventilating Association, 52 West Gay Street, Columbus, Ohio.

The American Society of Heating & Ventilating Engineers, 29 West 39th Street, New York City.

National Association Sheet Metal Contractors, 608 Chestnut Street, Philadelphia.

Western Warm Air Furnace and Supply Association, 2407 Cuming Street, Omaha, Nebraska.

The Midland Club, 52 West Gay Street, Columbus, Ohio.

Canton, Illinois, furniture dealer who sells furnaces.

A number of letters have been received and published which commented on the price at which this firm offered to make an installation in a five-room house.

Here is another letter that goes into detail as to costs. It might be worth while to scrutinize the various items and see how well the



# Too Many Installers Fail to Make Best Use of Manufacturers' Selling Helps

*They Are Also Lacking in the Matter of Their Own Advertising and Selling*

THE saying which the late Elbert Hubbard credited to Emerson but which he probably coined himself—about the better mousetrap and the world beating a track to his hut in the woods—is about the most abused combination of words that we know of, because it is used by men as a reason why they should not use aggressive selling methods, such as personal canvass or advertising.

It is true, of course, that good work and fair value is the only basis for real success, but it is also true that no business ever grew to any considerable size without the employment of at least one of the two methods mentioned, and also that a combination of the two will make for the greatest success.

A satisfied customer is a good advertisement, but many people are so

constituted that they are content to enjoy the good service that is rendered to them, without commenting on it to others, and it, therefore, behooves the furnace installer who does good work to do something himself to let people know that he does good work at a fair price—and how can he do this unless he goes out himself or sends salesmen—canvassers out to tell his story, and unless he uses his local newspapers or other advertising media to inform his prospective customers desirable portion, as well as the bulk of the business.

What success would the Holland Furnace Company have now if they had been content with waiting for customers?

Last year, according to their statement, they sold nearly ten million dollars worth of installations,

and a very small percentage of these were actually sold on a low price basis.

How many installations would they have sold if they had gone along on the principle that advertising is a needless and useless expense?

But you cannot afford to buy full pages?

Probably you may not be able to afford full pages right now, but if you were hungry would you refuse a sandwich because you could not buy a full meal?

Start in with a small advertise-

*What's home without a furnace?*



We Carry in Stock

Warm Air Furnaces—Pipe and Pipeless—Little Draft Man Regulators, Furnace Cements and Accessories of All Kinds.

If Your Furnace is Dusty—  
Let Us Reset and Repair It  
Have Us Make Your Furnace Pipe—  
It Lasts.

**PAUL A. BLAKE**

SPROUTING—TINNING

Roof Repairing and Painting  
Summerville Phone 390J—9 E. Main  
SLATE CARRIED IN STOCK

*Easily installed in a furnace*

## The Wise Family

*Will have perfect, even temperature in their home next winter—without dust or ashes—without spoiling clothes and dispositions by doing basement drudgery—They have installed—*

**OILHEAT BY AN EFFICIENT ENGINEER**

Complete from **\$85 to \$3,000**

**PHONE FLUSHING 5094**

ment, such as most likely you can find among the reproductions in this article. We show a number of retail advertisements prepared by furnace installers and also several samples of ready-to-use advertisements furnished by manufacturers in electrotpe form.

The only reason why a furnace installer does not advertise is that he is unwilling to benefit by these facts?

Probably the best known retail establishment in the world is that of Marshall Field & Company, but do they maintain that because they are so well known it is a waste of

installers fail to take the full advantage of this very valuable aid, and their attitude is recognized by the manufacturers, although the latter keeps on offering this service, probably in the hope that some day this indifference will change into real cooperation. Here are some statements from the manufacturers

on this point, especially as to how the installer can make the best possible use of such selling helps:

"By maintaining a live list of prospective furnace buyers and the distribution of advertising matter to that list in an intelligent and orderly manner. Dealer should bear in mind that the distribution of advertising matter is a sales effort and that to be effective must be distributed with the same care and thought that he would use when presenting a sales argument in person."

"Regular, week-in-and-week-out advertisements in local papers and follow prospects."

"We have tried everything and are starting over again," declares

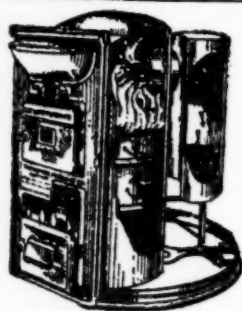


**WISE FURNACES  
PIPE AND  
PIPELESS**

**MORE HEAT LESS FUEL  
RALPH D. GIARTH**

522 Sixth Ave.

Phone 3996



money to advertise?

On the contrary, their advertisements occupy full pages in practically every issue of all the Chicago dailies—and why?

Because they found by experience that when their advertisements did not appear—such when strikes in newspaper offices prevented anything but "news" being printed—business always dropped to an alarming degree, and the same conditions hold good with all the other retail business houses.

*You must tell and keep on telling what you have for sale, how good the value is, how satisfactory your goods are, and where your place of business is.*

Of course, if you are satisfied with the small amount of business that may drift to you by accident or by the direction of some pleased customer you won't have to do any advertising, but if you are that sort of man you will not get much, because with every day going by, furnace installers are becoming convinced that advertising—intelligently planned and executed—always pays, and they are getting the experience of men more successful than he—and he shows thereby that he is unfitted to conduct a business so as to make it a success.

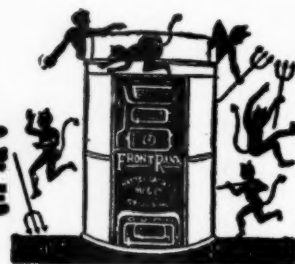
As to making use of the selling helps furnished by manufacturers, we find that altogether too many



# Think of Winter N-O-W

Start now to plan a clean, modern, efficient heating system in your home—a system that will provide moist, warm air evenly all over the house—and that will keep the fuel, dirt and ashes in the cellar where they belong. The days of the old heating stove are over—modern engineering skill has provided a better way.

**Make your plans  
now to install a  
FRONT RANK  
STEEL FURNACE**



There is nothing like a Front Rank. Heats—ventilates—humidifies the air. Easily and accurately regulated. Sends the heat into the rooms instead of up the chimney. Costs no more to run than two old-time stoves. Upkeep and repairs are almost nothing. Let us explain the many exclusive features of the Front Rank.

## E. O. Jones

Ebensburg, Pa.

Phone 64

**Guttering, Spouting, Metal Work, Furnace Repairs**

a widely known St. Louis furnace manufacturer, in reply to the best form of advertising helps, and this same manufacturer complains that the dealer could more effectively use the manufacturer's advertising helps "by using them instead of throwing them under a work bench."

"A list of his prospects followed up by him, also our traveling repre-

the utmost tact and patience for, after all, he is the one who makes the sales that make it possible for the manufacturer to run his plant?

But without making further comment, let us turn to the dealer's side and see how he answered the question as to what use he was making of the manufacturers' dealers helps. Here are some characteristic replies:

### The Dealer's Side

"Yes."

"Very little."

"All I can get."

"I use all that I can get."

"My company does all my advertising as you probably know."

"Any that I can."

"We think that each manufacturer should help, and we have found this very satisfactory."

"Give them to prospective buyers."

"Give them the names of my prospects and get in touch with the same."

"I use them."

"Use it all."

"We study them carefully and use such as seem to fit our requirements."

"Everyone should use them."

"It isn't worth a dime."

"I send their circulars to all my customers."

"None."

"I send them to the prospect."

"Circulars, etc."

"None."

### CONVECTO

Heats the Whole Hot Without Pipes, Radiators or Wall Registers—

These Mueller Convector is not only a wonderful heat in a small space, but it is also a wonderful heater for the whole room.

It is in fact a complete heating system in itself. It is a simple, compact, and efficient heater that can be used in any room.

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### Your Furnace

will it be "PUT IN" or "ENGINEERED IN"?

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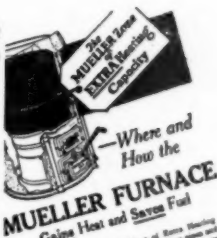
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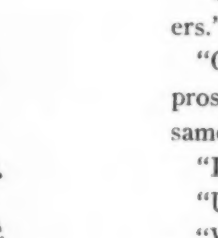
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These Mueller Convector is not only a wonderful heat in a small space, but it is also a wonderful heater for the whole room.

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sentative and through our office prospect follow-up mailing department."

The most effective use of the manufacturer's literature can be obtained, according to these correspondents, as follows:

"By following up his prospects closely and take advantage of the sales help of the traveling salesman as well as sending in names to the company's home office to be worked on by mail and passing out circulars and catalogs."

"By personal effort to explain the facts."

"By co-operating with us and using it as we intend."

"By posting and distributing judiciously and following up."

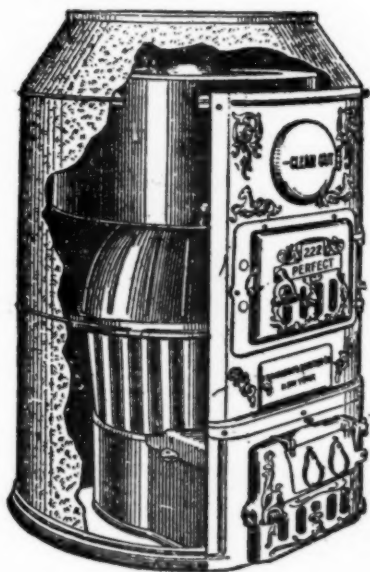
"By use as directed."

"By supplying the names and accurate addresses of live prospects regularly."

All in all, these suggestions cannot be considered very flattering to the dealer. But isn't it up to the manufacturer to educate him, using

## Constant Hot Air Service

### Low Fuel Cost



The Richardson & Boynton Furnace is an economy investment. Compare it with all others; you will find superior materials and construction, with longer life and lower cost of operation.

Let us figure your job.

Our spring terms of sale are reasonable and convenient. Call, write or phone

# W. G. MANEY

46 Main Street. Phone 680



"I send them to the prospect."

"I use their fence signs and descriptive matter."

"By either sending them out ourselves or sending the names of a prospect to the manufacturer."

"Not as much as we should."

"We use the manufacturers' advertising matter to show the customer, where the manufacturer stands, plus our own to show the customer where we stand."

"I use their cuts on all of my stationery."

"When I ran a shop I always

used manufacturers' advertising helps and found them very good."

"We use all they give us, such as envelope stuffers, etc."

"Find leaflets best. We wrap them in packages of goods purchased."

"Use all sent us—newspaper and circulars."

"Mailing list and window display."

"I do not use much newspaper advertising."

"I distribute circulars sent me by manufacturers."

for the first time while others may have a furnace of entirely new design and I have found a visit often saves complaints which are no fault of the furnace. Then, too, this customer may be in the market some day for another furnace and he will remember your service. I have always used service as a part of a sale and mention it as one of my sales arguments."

"I make a visit very often in the winter to all my warm air system users to see whether or not they are operating their particular systems so it is a coal saver and not a coal eater, like a good many systems are, because the dealer never shows his customer how to operate the furnace with less coal. Service helps me make a good many sales by telling my customers of the service I give them long after the service is installed."

"Service, in my opinion, is, or should be, the foundation on which

## The Installation Is Not Complete Until Furnace Operates Properly

*Service After Installation Is One of the Most Important Factors in Building Sales*

IN the matter of service to the house owner after the furnace has been installed, there is a keen appreciation of the value of and necessity for such among most of the furnace installers. They realize that their success can be built only upon the reputation for good work and a willingness to "make things right."

The following statements of progressive installers are exceedingly interesting and show the proper attitude:

"If any job does not give satisfactory service in every way we tell our customer we want to know it, and oftentimes send out our service man to make any minor adjustments necessary. We give a written contract guaranteed to heat in zero weather and we always carry out the guarantee, although in only two instances have we had to make any changes.

"Our reputation for service is one of the most important factors in our success in the furnace business. Already this year we have sold over fifty-five jobs and the opinion of other owners was an important factor in closing a good many of them.

"It is time well spent, as you can often give them pointers in firing

or control of drafts which will save fuel or give the furnace a better chance. Some are using a furnace

### NOT A BRAIN CELL WORKIN'



But How Many People Really Know Anything About Operating a Furnace Efficiently? Gaar Williams Had the Right Idea in His Heading

every form of business should be built; not service *promised*, but service *fully rendered*. The furnace business is no exception to this rule. I would recommend less guarantee, more real service, together with plain business horse

certain distance for so much money."

"We follow up sales even to the furnace we take down and supply with new parts, as it gives us a chance to see how our customers run their furnaces and if any fault

is found we explain to them how to run same. This also is a means of keeping our shop in their minds for other work. We believe the dealer should render every assistance to the purchaser possible. For instance, we keep all our furnaces cleaned for a period of five years, besides one visit a week at the start to instruct the householder as to the best way to fire and run his furnace."

"We always follow up a prospect until sold, and every year thereafter we mail out cards and ask if we should look over their heater; in this way we get a lot of repair and smoke pipe work. After the job is sold and *paid for*, there is no service called for, as it is not at all necessary."

"My aim is to see that the furnace does the work it was intended for it to do. A furnace man should look after his jobs as long as the

**We Sell the Homer because We're Sold on It**  
 WE PURCHASED the Homer from a downy other dealer because we knew it could be depended upon.  
 If you want to see a real furnace, come in and let us show you how the Homer is made. It is built like a battleship for strength, and in so exact as every detail as your high priced watch.  
 Ask us for one of the little folders explaining the details of Homer construction and operation.  
 DEALER'S NAME AND ADDRESS

**The HOMER Taps Them All!**  
 FOR real heating qualities and for real economy, the Homer Furnace is in a class by itself.  
 The Homer is the Original Patented Fireless Furnace, and though widely copied, has never been equaled. It has certain patented features that can not lawfully be duplicated.  
 Let us show you how the Homer is made. Let us explain how your home can be economically heated without pipes or fuel.  
 DEALER'S NAME AND ADDRESS

**More Heat at a Lower Cost with a Homer Furnace**  
 WHEN you buy a furnace you are not buying heat. And the matter of cost must be taken into account. The Homer is the most economical furnace you can possibly buy. It is reasonably priced, so fully maximum amount of heat.  
 DEALER'S NAME AND ADDRESS

*What's home without a Homer?*

sense. In making a sale 100 per cent service should be promised and adhered to.

"A customer should be made to feel he is dealing with an honest man, so he would not need a beautifully worded and colored manuscript, called a *guarantee*, which one would have to go to court to enforce."

"In most all cases I go to my customers when they begin using the furnace and show them to the best of my ability how to operate the plant to get the best results and assure them that any time that anything isn't giving satisfaction to notify me and I will come as soon thereafter as possible and correct the trouble. Service, as a part of the sale, is the best of advertising."

"We are at all times trying to impress the customer that heat service and length of life of the investment is the issue. Anyone can sell furnaces and get a large repair business. We impress it upon the customer's mind that heat service is all that we sell; that if he buys a railroad ticket to a distant point the railroad agrees to carry him a

**Dalzell's AMERICAN BOILER-PLATE FURNACE**

**These Cool Mornings Prove Its Performance**

**NOT** the slightest bit of trouble—always a quick, hot fire—when you enjoy Dalzell's **AMERICAN** Boiler-Plate Furnace in your home. Thousands are in use in Youngstown, many having given continuous service without repairs for over 20 years. Let us give you details.

**The DALZELL BROTHERS Co.**  
*"The Roofing and Sheet Metal Folks"*  
 PHONE 6-5245 - - - 21 HOLMES ST.







## **Indiana Sheet Metal Contractors Will Meet in Indianapolis January 28 and 29**

**Hotel Reservations Should Be Made Early as Legislature and Hardware Dealers Also Meet at That Time**

IT has been found necessary to change the date and location of the Annual Convention of the Indiana Sheet Metal Contractors' Association, as will be noted from the following letter from President Joseph C. Gardner:

TO AMERICAN ARTISAN:

The annual convention of the Sheet Metal Contractors will be held on Wednesday and Thursday, January 28th and 29th, 1925, at Indianapolis, in place of Lafayette, Indiana.

The Retail Hardware Dealers and the Fur-Mets will also hold their conventions at Indianapolis on January 28th, 29th and 30th, and as a great many of the Sheet Metal Contractors are affiliated with the Hardware Dealers a large attendance is expected at all the conventions.

The headquarters of the Sheet Metal Contractors will be at the Hotel Severin, and as the Indiana State Legislature is in session at Indianapolis during the months of January and February it would be well for those expecting to attend the convention to at once make hotel reservations.

An invitation to attend the convention is extended to all sheet metal contractors as well as others affiliated with the sheet metal trade.

JOSEPH C. GARDNER.

Further information as to the Convention is contained in the following letter from O. Voorhees, Secretary of the "Indiana Fur-Mets," the salesmen's auxiliary:

TO AMERICAN ARTISAN:

In further advices as to the Convention of the Fur-Mets to be held January 27 and 28, will say that our Banquet will be held on the night of the 28th. The Sheet Metal Contractors' Association, who will

hold their Convention on the 28th and 29th, have accepted our invitation to join us in our Banquet and Entertainment, and we anticipate these meetings and entertainment will prove both interesting and enjoyable, and we expect to have one of the best Conventions in attendance and interest ever held in Indiana.

The Indiana State Hardware Convention and Exposition will be held during the same week, on the 27, 28, 29 and 30th and they have extended a cordial invitation to all the Sheet Metal Contractors and the Fur-Mets to attend their Exposition every afternoon.

With these three organizations holding their annual meetings during the same week, and with the cordial spirit existing between them no doubt we shall have a large attendance, and we believe very profitable Conventions. The Banquet of the Hardware Association will be held on the night of the 29th.

O. VOORHEES.

### **National Association of Sheet Metalers Urges Acceptance of Simplified Practice Program**

The National Association of Sheet Metal Contractors of the United States, through its secretary, Edwin L. Seabrook, has sent out to all local and state associations a letter containing acceptances of the simplification program as worked out at three different conferences of the association and embodied in the three paragraphs in the letter published below.

The acceptances are to be signed and returned to the Division of Simplified Practice, Department of Commerce, Washington, D. C.

It is desired that the acceptances be signed and mailed as early as possible in order to facilitate put-

ting the recommendations into practice.

The letter of Secretary Seabrook follows:

TO ALL LOCAL AND STATE ASSOCIATIONS:

At three different conferences at which our National Association was represented at Atlantic City, last October, it was decided:

First, By the sheet metal mills to reduce the number of sizes and gauges of black and galvanized sheets, also to eliminate all gauges lighter than No. 28, full weight, galvanized or painted, for roofing purposes.

Secondly, The manufacturers of conductor pipe, eaves trough, shoes, recommended the elimination of all gauges lighter than No. 28, full weight. Those made of copper to be not lighter than 16 ounces.

Thirdly, Tin roofing plate manufacturers adopted recommendation to eliminate 12 and 35-pound weights, making only 8, 15, 20, 25, 30, 32, 40 pounds, none to be lighter than IC thickness.

These conferences were held under the auspices of the Division of Simplified Practice, Department of Commerce.

Our national association, the jobbers and mills have signed the recommendation, which is a formal one, prepared by the Department of Commerce.

It is desired, however, that the recommendations for the adoption and use of the above shall be signed as widely as possible by all parties interested. Therefore, each state and local association is urged to sign the acceptances which accompanied this letter. It is hoped that action will be taken without delay and that the acceptances will be signed and promptly mailed to the department of Commerce. Address the envelope:

Division of Simplified Practice, Department of Commerce, Washington, D. C.

The elimination of these light gauges will be a decided benefit to the sheet metal industry. Will you act without delay?

E. L. SEABROOK,

# Nickeled Zinc Suitable for Making Attractive Tobacco Boxes

*Kothe Shows How Patterns for Tobacco Boxes Are Laid Out — Soldering Process Also Described*

**A**MONG sheet metal tradesmen and their friends there are many pipe smokers,—some give testimony of quite a small high-pressure boiler plant stationed somewhere in the individual—judging from the great volume of smoke they produce. Such smokers enjoy possessions that go with smoking, just like fishermen enjoy new fishing tackle.

So in this drawing we show a unique tobacco box made by the cornice maker's art. These boxes can be made to have square corners, hexagon or octagon as we show, or even bumped out round. In this case we have an octagon body, a square cornered lining and a square cornered cover. Materials suitable for such work is nickel-

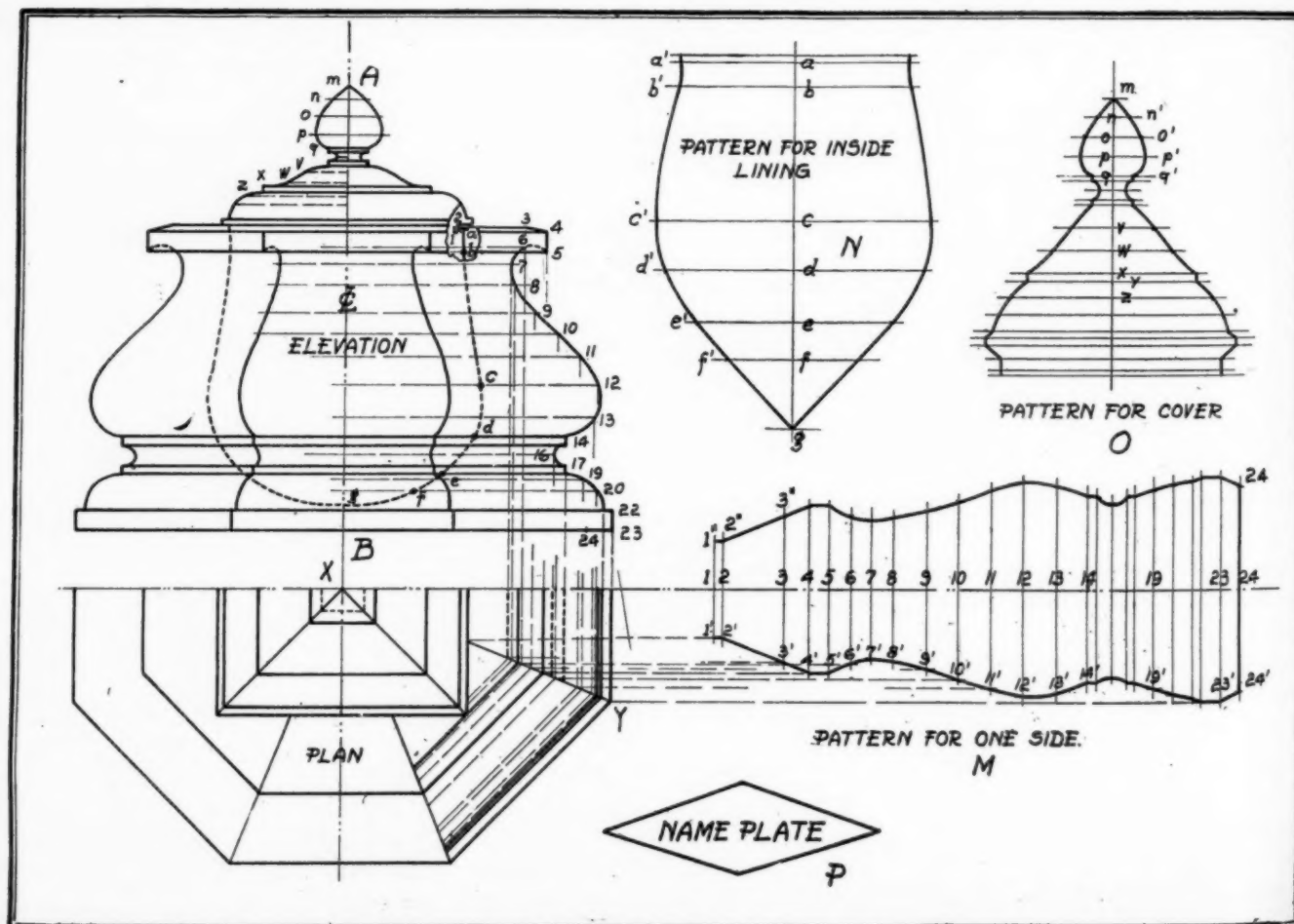
zinc, German silver, copper or brass. All these metals, whichever used, should be laquered and burnished, thus making a lasting effect.

It is often well to make a variation of metal as a sort of trim; thus for a nickel zinc body a copper or polished brass name plate is sweated on, on some conspicuous flat or near flat surface. Or a copper, or if the copper is treated to an old style copper finish and burnished—a name plate of nickel zinc or German silver is effective. But care must be taken not to use too great a variation, since that will spoil its artistic effect.

About the most difficult thing to achieve in such work is the design. This is largely a matter of "feeling," we draw the various members

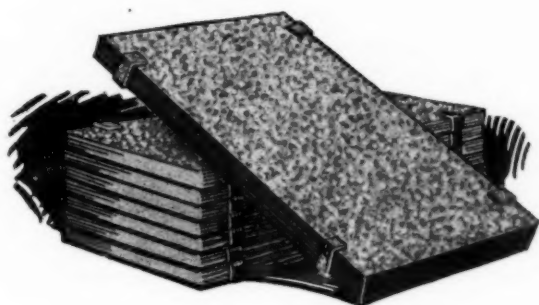
from a knowledge of what goes well together. But their exact curvature, height and width—that is always open guess work. Hence, we say designs are governed by "feeling," since certain shapes may not reflect to the eye properly, and while the eye may not be liable to error, somehow the "feeling" is not right, and we have to experiment with the design until this "feeling" is corrected.

Architectural "feeling" can only be acquired by a considerable period of study in drawing, in designing, in art development, and the relation of parts from the works of all great masters. Just so it is in the design of tobacco boxes; their design can be endless, but if they are not neatly executed,



Patterns for Tobacco Box.

## *The Products Are Very Different— The Sales Principle Is Exactly the Same*



## **You Can Make Markets**

**T**HE tremendous power of organized co-operative marketing has been proved many times in the last decade. Take oranges, for instance. Twenty years ago oranges were more or less of a luxury, a delicacy, in evidence at Christmas, but not an everyday food in the home. Today the American public, young and old, eats oranges all the year 'round, for breakfast, for lunch, for dinner. The market has been vastly increased.

What has worked this change? Nothing more or less than organized co-operative effort, telling the public about the health value of oranges, showing wholesale and retail dealers how they could sell more oranges, making markets for oranges where none existed before.

Oranges and Sheet Steel have this in

common: Organized co-operative effort, directed along sound, sane, practical lines, can be made to increase demand for them, to make markets, just as surely as individual sales effort will increase sales.

The Trade Extension plan of the Sheet Steel Industry has been several years in growing to completeness. Now it is in successful operation. Inertia has been overcome. There is a steady gain in momentum.

It is a plan which will be of benefit to all who are concerned in the making, selling or using of Sheet Steel. If this includes you, this movement is of vital importance to you. And you should know its purpose, its scope, its operation. Write for the booklet which will enable you to determine how you can make this activity helpful in your business.

**SHEET STEEL  
TRADE EXTENSION COMMITTEE**

715 OLIVER BUILDING  
PITTSBURGH PENNSYLVANIA



the owner will soon throw them in the ash pit. On the other hand, if the box is a piece of art, he will keep it as an heirloom.

The design is started by making certain measurements from the center vertical line, as A-B. Such measurements are the projection of the bases; the height, and such other dimensions that can be used to help guide in designing. In our case, the box is  $5\frac{7}{8}$  inches at the bottom,  $4\frac{3}{8}$  inches at the top base acrossed from points 4; while the height is 3 5-16 inches, and the cover is  $1\frac{1}{2}$  inches high. The rest is designed as shown, or in a thousand other ways—just so it is artistic. The inner lining shown dotted, can be spread more; thus enlarging the pocket for more "good stuff," as smokers say.

When the design is finished, divide all curved lines into equal spaces, numbering all points and bends as shown. Next develop the plan to correspond to the shape of the body desired. In this case we have an octagon shape, and so X-Y is the miter line from which the pattern is developed. So pick the girth spaces separately from elevation as 1-2-3-4-5-6, etc., to 24 and set on the line 1-24, which is the center line of plan extended. Through each of these points draw vertical lines, and then follow all lines from elevation points into X-Y of plan, and thence into pattern of similar number. Observe the miter X-Y cuts off the width of lines, so that by projecting lines into pattern, these lines are cut off, as 1'-2'-3'-4' to 24'. Join all these points with lines and you have the body pattern finished. The upper half is established by the use of dividers lifting lines 1-1' as 1-1"; 2-2' as 2-2", etc.

The pattern for the cover is laid out by picking the girth from elevation as m-n-o-p-q-r-s, etc., and setting them on a straight line as in pattern O. Through these points draw horizontal lines, and with dividers pick the half width of lines from elevation—working from center line A-B. In this way the

half widths at n-o-p from A-B are transferred into pattern as n-m', o-o', p-p', etc. This enables drawing the outline for cover.

The same procedure is followed for the pattern for the lining or pattern N. Here we take such points on the line as b-c-d-e-f-g where the girth can be easily picked and that represent changes in curvature. Otherwise the procedure of development is the same.

It is necessary to mention that all members must be bent exactly to profile, and that no laps are allowed. The corners are butted, using a file to dress the miter on the thickness of metals where necessary. A perfect fit should be made, and no forcing done, and all soldering done on the inside. This re-

quires good soldering copper and skill in soldering. Where soldering cannot be done on the inside, as in the button of cover and certain other places, acid the parts on each side inside, so no acid gets on the outside. Then run a film of solder along the one side, and after which join the parts and hold a good, clean copper along the outside of the film of solder, thus causing it to flow into the miter and join the two parts together.

Where solder flows through, and this is not necessary, it should be scraped off clean, and not scratch the surrounding metal. When the box is finished, it should be polished, lacquered and burnished, and you will have a nice piece of work.

## *February 21, 1925, Is Twentieth Anniversary of National Association of Sheet Metal Workers*

*Occasion Should Be Fittingly Observed by Local Organizations*

**F**EBRUARY 21, 1925, will mark the twentieth anniversary of the organization of the National Association of Sheet Metal Contractors, the event taking place in Philadelphia, and the Philadelphia sheet metal men are going to observe the date with a dinner and a fine entertainment for which arrangements are now being made, according to the following letter from National Secretary, E. L. Seabrook:

TO AMERICAN ARTISAN:

The Philadelphia local is planning to celebrate the 20th anniversary of the National Association on an extended scale. As the National Association was organized in Philadelphia, February 21-22, 1905, the Philadelphia members believe that the occasion should be fittingly celebrated. All interests of the sheet metal industry in the city have been invited not only to participate in, but also to plan the celebration.

A Joint Committee has been appointed, consisting of Edwin L.

Seabrook, Joseph V. Kelley, Whilmore R. Taylor and Walter H. Tinney, of the Local Association; Warren Carter, of the Sheet Metal Club; E. F. Glore, for the Furnace Section; William P. Stephenson, of the Sheet Steel Mills; Thomas Quinn and Thomas B. Cook, of the Salesmen's Auxiliary; W. G. Schrack, Camden Local.

This committee met December 13th and planned the details. The celebration will be in the form of a dinner, Friday evening, February 20th. It will probably be held in one of the large banquet rooms of the new Benjamin Franklin Hotel.

The principal features of the program will be:

An historical sketch of the National Association.

Five-minute talks by representatives of:

The Jobbers,  
The Salesmen,  
The Sheet Steel Mills,  
The Warm Air Furnace,  
The Trade Journals.

**Defies Rust!**  
**See for Yourself**

**H**ERE'S the metal for every contractor and for every manufacturer whose product is subject to weather and rust.

It's Wilder Metal. It defies rust—it withstands heat, exposure, salt air—it resists oxides and acid fumes—it outlasts any ordinary metal for years.

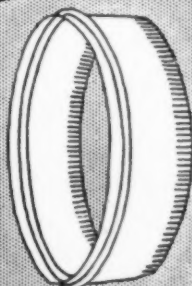
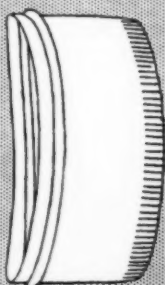
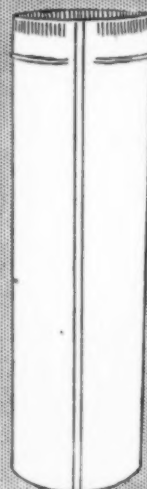
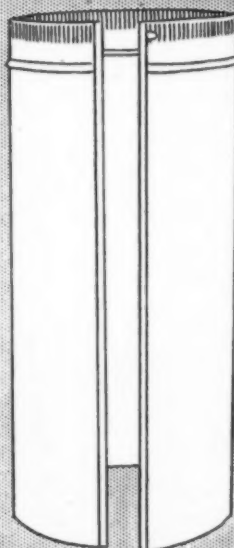
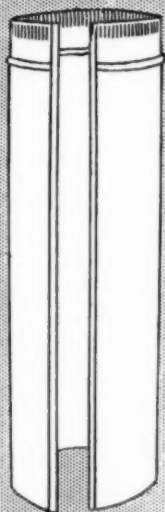
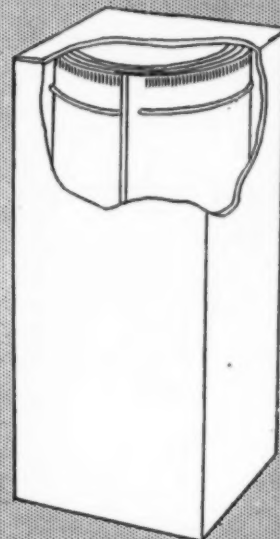
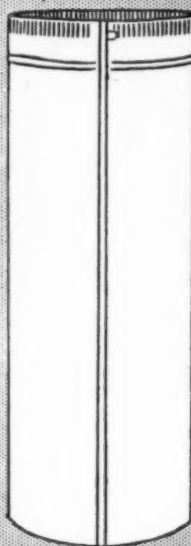
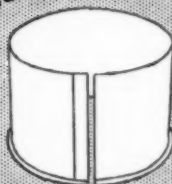
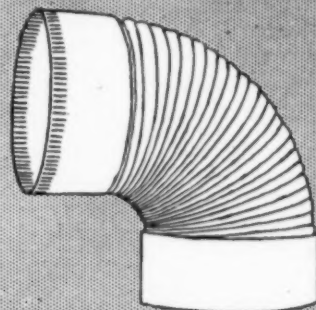
The life of many such products as those illustrated could be tripled by the use of Wilder Metal. Sixty leading stove manufacturers are using it and are increasing the life of their ovens by years. Roofers are using it and multiplying the durability of their roofs many times.

Wilder Metal can help you improve your product. Send for samples today, and prove it.

WILDER METAL COMPANY  
 NILES, OHIO

**WILDER-METAL**  
*defies rust*

SHEETS, STAMPED and FORMED PARTS, PROCESSING, etc.





The principal address of the evening will be an inspirational one. The Reverend Gill Robb Wilson, D.D., Trenton, New Jersey, has been invited to make this address.

In addition to these features, there will be an orchestra, a song leader and plenty of amusing anecdotes.

The Camden, New Jersey, Local has been invited to make the celebration a joint one. Invitations will be extended to the sheet metal firms of Philadelphia and surrounding territory, Southern and Central

New Jersey, without regard to affiliation with the National Association.

Yours truly,

EDWIN L. SEABROOK.

Editor's Note: In every city where there is a Local of Sheet Metal Contractors there should be a celebration of some sort on or about February 21, 1925, because the organization of the National Association of Sheet Metal Contractors marked the beginning of a new and better era in the Sheet Metal Industry.

## *Father, Son and Grandson, Have Operated Sheet Metal Shops for Ninety-Eight Years*

*Younger Members of Family Learned Trade From Fathers and Continued Business in Same Place*

**G**EORGE S. HIGGINS, JR., is now proprietor of the sheet metal business established by his grandfather in New York City nearly one hundred years ago.

Mr. John Higgins came to America in 1820 from Manchester, England. A tinner by trade, he obtained work with a Philadelphia tinsmith. In 1825 he went to New York and in 1826 moved to Manhattanville and established his own

business on Lawrence Lane near the Albany Post Road, now 126th Street near Broadway.

John Higgins died in 1877 and his son, George S. Higgins, who had worked faithfully for his father for many years, took charge of the business. His son, George S. Higgins, Jr., succeeded to the business at the death of his father, June 13, 1924.

The present proprietor of the

business had a twelve years' apprenticeship under his father and is now carrying on the business in an aggressive way.

Mr. Higgins says: "We make all our leaders, gutters, blow piping, ventilators, skylights, flashings, belt guards and motor covers from galvanized Toncan Metal, and we invariably recommend its use where conditions demand a durable sheet metal."

Some of the work done with Toncan by Mr. Higgins and his associates are shown in the accompanying illustration.

### *F. H. Bourke Is Michigan Representative for American Nickeloid Company*

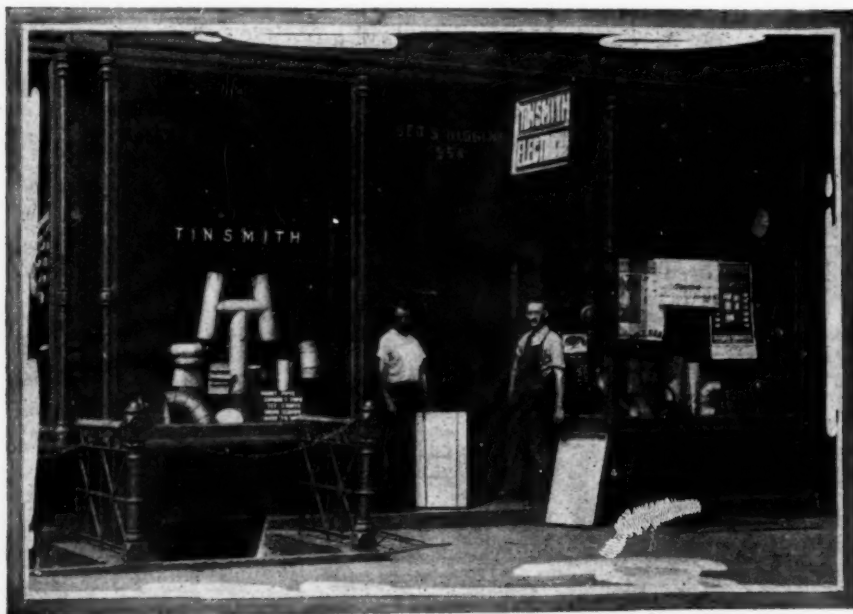
The American Nickeloid Company, Peru, Illinois, has announced the appointment of F. H. Bourke as its Michigan representative. Mr. Bourke has had an extended experience as salesman and is widely known in the nickel and allied trades. His headquarters are at 1577 Cadillac Avenue, Detroit.

The American Nickeloid Company manufactures nickel zinc under the trade name of Nickeloid. In fact, it claims to be the original manufacturer of this metal in America. It maintains plants at Peru, Illinois, and Walnutport, Pennsylvania, with general offices at Peru, and it has sales offices in Brooklyn, New York, and Chicago, and sales agencies in Toronto and Detroit.

### *Master Sheet Metal Contractors of Wisconsin to Hold 1925 Convention February 3 and 4*

The next convention of the Master Sheet Metal Contractors' Association of Wisconsin will be held on February 3rd and 4th, 1925, in the Gold Room at the Hotel Wisconsin, Milwaukee, Wisconsin.

The convention will just precede the hardware convention, as the board of directors figured that there would be a better attendance than in preceding years. The entire hardware trade is invited to attend



Shop of George S. Higgins, Jr., 554 West 126th Street, New York City. The man on the right is Mr. Higgins, the others are William Guinan, on left, and Stephen Connolly, two of his assistants.





## *Toncan has built prestige for Taber and Reid*



*Toncan Metal roof installed in 1912, and still in perfect condition. Eighteen inches of ice at the eaves did not cause the roof to leak last winter.*

They get the cream of the business in Augusta, Maine, as these three Toncan Metal roofing jobs will testify. Why? Because they were far-sighted enough to see that only by using materials which would deliver 100 per cent service could they hope to put their business on a solid foundation.

Toncan has justified their judgment. A Taber and Reid job has become a synonym for permanence in Augusta. Mr. Reid says, "Our oldest Toncan Metal Roof was finished in May, 1912, and as far as we can see it is in as good condition today as it was when finished."

The success of Taber and Reid is another shining example of the fallacy of cheap sheet metal work which lasts but three or four years. People do not want cheap work. They want good work at a reasonable price, which is exactly what you can give them with Toncan Metal.

Every new Toncan customer you get will soon be boosting for you with all his might. Business will come your way unsolicited, as a result. That's when your sheet metal shop will begin to show a steady, comfortable profit.

Drop us a line for our proven selling plan on Toncan Metal, and begin to build prestige for yourself.

**United Alloy Steel Corp., Canton, Ohio**



*In 1915 Taber and Reid applied the Toncan Metal Roof on this handsome residence. It is still like new in spite of unusually severe winters and hot summer sun.*

# **UNITED ALLOY STEEL CORPORATION**

the morning session on February 3rd, in which a picture will be shown on the subject of copper, showing the various stages through which it passes from the time it is mined until it is used.

On the morning of February 4th the program calls for a visit through the Milwaukee Corrugating Company's plant and also the plant of the Milwaukee Rolling Mills, showing how sheets are made. There will also be some live-wire speakers on the program.

### ***New Manual Arts Building in Tulsa, Oklahoma, Will Have Sheet Metal Shop***

The new \$160,000 Manual Arts Building, now being erected by the Tulsa, Okla., School Commission, will include a sheet metal shop and a course in sheet metal construction. The building will be 2 stories high, 140x150 feet. A completely equipped machine and forge shop will also be included.

### ***William Scott Goes A Sky Writing for Diversion***

What, ho! William Scott, the mathematical wizard of Juniata, Pennsylvania, and Poet Laureate of the Keystone State, has taken to galavanting with the air goblins and no doubt will soon have Satan himself ensnared into solving his problem for him.

Speaking of ability to make men work, read of the aforesaid Scott's latest and most daring escapade.

TO AMERICAN ARTISAN:

Either in the spirit or the flesh, I found myself installing a warm air furnace that required two cold air returns each 18 inches in diameter.

In order to have the cold air enter the casing below the level of the grate, I flattened the ends of the pipes, making ellipses 12 inches high, as I had often seen other installers do, as shown in the illustration.

The job, when finished, was inspected by my boss, who exclaimed wrathfully:

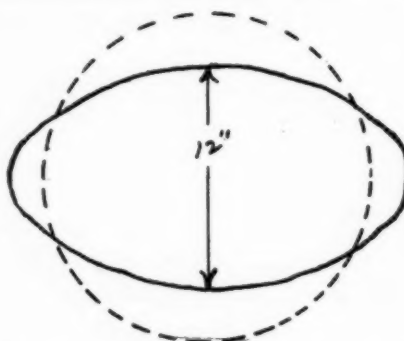
"Lunkhead, you have reduced

the capacity of those returns. Now, you will have to add a third return big enough to make up the deficiency."

But I couldn't figure the size, and I was puzzling over this problem, when an airplane landed in front of the shop. The pilot wanted some soldering done. He stated that he was going to Mexico, and I asked doubtfully:

"Could you take me to Tullahoma, Tennessee, so I can consult with one Harry Frye on important business?"

"Jump in," he answered, and up we went, like a rocket. When I told him I was going to find out how big to make a pipe, he laughed immoderately and seemed a little tipsy. He started to sing while the earth was falling from under us,



and it dawned on me that he was a goblin rather than a man, though his weirdness was not at first apparent. He sang out strongly:

"Oh, let us hie into the sky

And make the angels flee.

Ho, we shall go to Harry Frye

In far-off Tennessee——"

Then the machine took a nose dive—down, down, crash!—and I awoke without my problem solved. Now, what is the answer?

WILLIAM SCOTT.

### ***St. Louis Sheet Metalers to Hold Banquet at Marquette Hotel January 10***

The annual banquet and installation of officers for 1925 of the Sheet Metal Contractors and Sheet Metal Protective Association of St. Louis, Missouri, will occur Saturday, January 10, 1925, at 6 p. m. The affair will be staged at the Marquette Hotel, 18th Street and

Washington Avenue, St. Louis.

It is announced that the ladies are going to be allowed to participate in these festivities.

### ***Carhart Hardware Wants to Buy Tinnners' Tools***

TO AMERICAN ARTISAN:

Please put us in touch with people who have tinnners' shop tools for sale.

We want price lists and literature showing the tools and discounts.

Yours truly,

CARHART HARDWARE CO.

Emerson, Nebraska.

### ***Youngstown Sheet & Tube Company Opens New Sheet Mill***

Officials of the Youngstown Sheet & Tube Company a few days ago witnessed the formal starting of four of the new eight sheet mills recently completed at the Briar Hill works at Youngstown. The new plant will produce black, blue annealed, pickled and full finished sheets, and will employ about 600 skilled and semi-skilled men when operating normally.

### **Notes and Queries**

#### **Punching Press with Electric Motor Attached.**

From Board of School Directors, School Repair Department, Milwaukee, Wisconsin.

Please advise us who makes punching press with electric motor attached, dies, punches and gauges for manufacturing wire guards with channel iron frame for window guards.

Ans.—LaSalle Machine Works, 3017 South LaSalle Street, Chicago, Illinois.

#### **Address of Wilkes Manufacturing Company.**

From Stove Dealers Supply Company, 310 Chestnut Street, Milwaukee, Wisconsin.

Can you tell us where S. Wilkes Manufacturing Company is located?

Ans.—3517 Shields Avenue, Chicago, Illinois.



TRADE MARK

*F. Dieckmann*

**W**HEN this trade mark is stamped in the metal in the back of the elbows you use you can be sure that you are using the elbow used for years by the best contractors.

They are made right and packed in air-tight, dust-proof corrugated containers.

**The Ferdinand Dieckmann Co.**

P. O. Station B  
Cincinnati, Ohio

*All sizes—All materials—All gauges*





## One of Your Window Photographs May Take First Prize

**Enter as Many as You Like in American Artisan and Hardware Record Window Display Competition Now!**

**A**MERICAN ARTISAN AND HARDWARE RECORD window display competition has been dedicated to interests of the retail hardware dealer who depends to a great extent upon his window displays to attract customers into the store.

Many window display makers fail to realize that attention must be directed to the articles in the window and not to the decorations. Admirable decorations do not bring customers in the store to make purchases.

Therefore the decorative material in any window display should be utilized only insofar as it can be made to concentrate attention upon the articles the window offers.

Although much sand has slipped through the hour glass of time since the art of decorating sales windows for the promotion of more sales, some retail men still fail to realize the importance of keeping their display windows neat and clean.

Potential customers are potential customers because they conform to certain fundamental rules of cleanliness inherent within themselves. They have a natural repugnance for unsightly or disorderly appearances. It is only the vagabond and the vagrant who are indifferent to their surroundings. These gentlemen, however, are not potential customers for the store and their likes and dislikes have no material value to the retailer from a sales standpoint.

The object, therefore, of conducting this yearly competition is to acquaint each hardware retailer with what every other hardware retailer is doing along the same lines, and at the same time point out wherein each one of these retailers has deviated (if all) from the accepted practice which constitutes good sales psychology.

There is no iron-bound rule to that practice.

Each retailer has circumstances peculiar to his own locality, but the practice in one locality has been found to be sufficiently like that of all other localities that, knowing them all, a good average can be struck from which each individual can deviate sufficiently for his own needs.

The prizes to be given are: First, \$50; second, \$25; third, \$15; fourth, \$10, paid in cash to the winners of the contest as soon as photographs are judged.

The photographs, together with descriptions of how the window displays were arranged and the materials used, may be sent by mail or express, charges prepaid, and must reach this office not later than January 31, 1925.

Each photograph and description must be signed by a fictitious name or device and the same name or device must be placed within a sealed envelope containing the real name and address of the contestant. This sealed envelope is to be enclosed with the photograph. Contestants may enter as many window displays as they desire.

AMERICAN ARTISAN AND HARDWARE RECORD reserves the right to publish all photographs and descriptions submitted in this competition.

A competition committee of three will be appointed, one of whom will be an expert window dresser and one an experienced hardware man. This committee will pass upon the merits of all photographs and descriptions received, without knowing the names or addresses of the senders, and will decide the winners of the contest.

### **Hamp Williams Takes Job With Uncle Sam But Keeps Selling Hardware on the Side**

Hamp Williams, Hot Springs, Arkansas, former President of the National Retail Hardware Associa-

tion, has been selected by President Coolidge as Director of the Federal Reserve Bank at Little Rock, Arkansas.

Mr. Williams has telegraphed his acceptance and will assume his new duties January 1st.

### **Warren McArthur, Sr. Dies in Arizona**

Warren McArthur, Sr., of Chicago, died December 24th at his winter home on the country club grounds. Pleurisy was the cause of death. He had been coming to Phoenix for more than twenty years; for forty years he had been prominent in Chicago business circles, being associated with the H. A. Dietz Company. He was 68 years old and a native of Cleveland, Ohio. He is survived by his widow and three sons.

### **R. M. Dudley, Sr., Long Prominent in Southern Hardware, Has Passed Away**

We regret to announce that R. M. Dudley, Sr., for nearly twenty years President of the Gray & Dudley Company, died at his residence in Nashville, Tennessee, on Sunday, December 21st.

With the late John M. Gray Colonel Dudley, as he was familiarly known, organized the Gray & Dudley Company in 1895 and from a small retail business this firm expanded under his direction until it is recognized as one of the largest Southern hardware organizations. While primarily interested in hardware he organized and directed the affairs of the Pioneer Water Company, the Broadway Hardware Company, and the Dudley Gum Company and was a director of the Foster & Creighton Company, one of the prominent construction companies of the South.

He was one of the best known hardware merchants and manufacturers in the United States, and was President of the National Hardware Association for two terms, in 1909 and 1910. He was a member of the Association's advisory board at the time of his death.

# Osborn Gutter and Conductor



OSBORN Gutter and Conductor is made in all regular sizes and gauges (28 and heavier)—slip or lap joint—single or double bead—in Golden Star Galvanized Steel, Galvanized Armco Ingot Iron, Copper and Zinc. We can also furnish the necessary fittings and accessories, including "Dieckmann" Elbows and Shoes.

OSBORN Slip Joint Gutter—the last word in easy rapid erection—no twisting or fumbling—the joints slip together smoothly. There is a guide lip on both body and bead—giving added strength. It is Osborn accurate workmanship that makes this possible. You can set up 20 per cent more Osborn Slip Joint Gutter at an equal labor cost—that means money saved.

Osborn Conductor is well formed, uniform and pleasing in appearance—the seams are tightly closed and water tight. Carefully crimped ends and accurate forming allow easy fitting to all standard elbows and accessories. Osborn galvanizing stays on.

Every length of Osborn Gutter and Conductor bears our die-stamped trade mark—it means that we use none lighter than 28 gauge metal. Order it for your next job—get acquainted with real satisfaction. Prompt shipment. Write for standard price list today.

## The J. M. & L. A. Osborn Co.

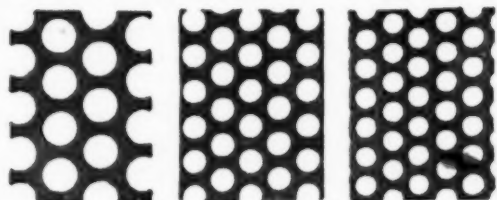
*"Everything Used in Sheet Metal Work"*

CLEVELAND

OHIO

Buffalo Warehouse—64-66 Rapin Street

## PERFORATED METALS



All Sizes and Shapes of Holes

In Steel, Zinc, Brass, Copper, Tinplate, etc.

For All Screening, Ventilating and Draining

EVERYTHING IN PERFORATED METAL

**THE HARRINGTON & KING PERFORATING CO.**

610 NORTH UNION ST.—CHICAGO, ILL., U. S. A.  
NEW YORK OFFICE, 114 LIBERTY ST.



*The Best Eaves Trough Miter in the World*

Ask your Jobber for  
**CHAMPION MITERS & ENDS**  
*all Dependable Products*

**BRADEN MFG. CO.** TERRE HAUTE INDIANA

## Memorial Monuments

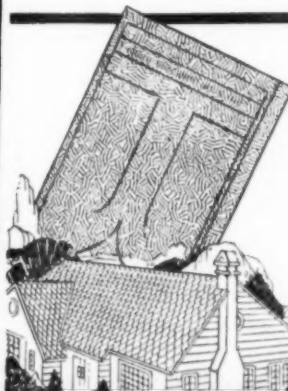
Write for Prices and Illustrations

**Gerock Bros. Mfg. Co.**

Sheet Metal Ornaments  
and  
**STATUARY**

1252 So. Vandeventer Ave.

St. Louis, Mo., U. S. A.



*Hand-dipped is the best Galvanized Shingle made*

Then there is the other kind stamped from sheets which come already Galvanized.

—We make both kinds and we will be glad to send prices and discounts also our booklet "Concerning that Roof."

**CORTRIGHT METAL ROOFING CO.**  
50 N. 23rd Street, Philadelphia  
528 S. Clark Street, Chicago

**CORTRIGHT METAL SHINGLES**



Colonel Dudley was probably more largely responsible for Nashville's beautiful parks than any other one man. The work of the park commission has been one of his chief interests for more than twenty years. He was also deeply interested in the work of his church, both locally and throughout the state.

His funeral, attended by poor and rich in Nashville, took place at the Edgefield Baptist Church of which he was an active member.

Houston Dudley, one of his nephews, and vice-president of the Company, was associated with him in the hardware business for more than forty years and says in his letter to us that "there never was a better man in any business, and he leaves behind him a good name."

### ***Southern Hardware Jobbers and American Manufacturers to Convene at Dallas, Texas, April 21 to 24***

Secretary-Treasurer John Donnan, of the Southern Hardware Jobbers' Association, has issued the preliminary announcements of the Association's 35th annual convention and the spring convention of the American Hardware Manufacturers' Association which are to be held at Dallas, Texas, April 21 to 24, 1925.

The Adolphus Hotel will be headquarters for both conventions.

### ***New York Retail Hardware Men Prepare for February Convention***

The New York State Retail Hardware Association is already preparing for its 1925 convention and exhibition, to be held at Buffalo, February 10 to 13.

The publicity matter being distributed among retailers at this early date consists in wall placards in dark-blue, orange and white.

Headquarters for the convention will be the Hotel Statler, while the exposition will be held at the Broadway Auditorium.

John B. Foley, City Bank Building, Syracuse, is secretary.

## **Coming Conventions**

Western Retail Implement and Hardware Association Convention, Kansas City, Missouri, January 13, 14, 15, 1925. H. J. Hodge, Secretary, Abilene, Kansas.

Kentucky Hardware and Implement Association Convention, Jefferson County Armory, Louisville, week of January 18, 1925. J. M. Stone, Secretary-Treasurer, 200 Republic Building, Louisville.

Texas Hardware and Implement Association Convention, Dallas, Texas, January 20, 21, 22, 1925. Dan Scoates, Secretary-Treasurer, College Station.

West Virginia Hardware Association, Convention and Exhibition, Clarksburg, January 20 to 23, 1925. James B. Carson, Secretary, 1001 Schwind Building, Dayton Ohio.

Missouri Retail Hardware Association, Convention and Exhibit, Hotel Statler, St. Louis, January 26 to 28, 1925. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis.

Convention of Indiana Fur-Mets, Indianapolis, Indiana, January 27 and 28, 1925. O. Voorhees, 36 West Tenth Street, Indianapolis, Secretary.

Indiana Retail Hardware Association, Convention and Exhibit, Cadle Tabernacle, Indianapolis, January 27 to 30, 1925. G. F. Sheely, Secretary, 911 Meyer-Kiser Building, Indianapolis.

Mountain States Retail Hardware Association, Convention, Denver, Colorado, January 27 to 30, 1925. W. W. McAllister, Secretary, P. O. Box 513, Boulder, Colorado.

Indiana Sheet Metal Contractors' Association, Convention, Indianapolis, January 28 and 29, 1925. Leslie W. Beach, 1136 Main Street, Richmond.

Oklahoma Hardware and Implement Association, Convention, Masonic Temple, Oklahoma City, February, 3, 4, 5, 1925. Charles L. Unger, Secretary-Treasurer.

Nebraska Retail Hardware Association, Convention and Exhibition, Omaha, February 3, 4, 5, 6, 1925. Convention headquarters, Rome Hotel. Exhibition, City Auditorium. George H. Dietz, Secretary, 4141-419 Little Building, Lincoln.

Wisconsin Retail Hardware Association, Convention and Exhibition, Auditorium, Milwaukee, February 4, 5, 6, 1925. P. J. Jacobs, Secretary-Treasurer, Stevens Point.

Ohio Hardware Association, Convention and Exhibition, Columbus, February 10 to 13, 1925. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

New York State Retail Hardware Association, Convention and Exposition, Buffalo, February 10, 11, 12, 13, 1925. Headquarters, Hotel Statler. Exposition, Foley, Secretary, City Bank Building, at the Broadway Auditorium. John B. Syracuse.

Iowa Retail Hardware Association, Convention, Savery Hotel; Exhibit, Armory, Des Moines, February 10 to 13, 1925. A. R. Sale, Secretary, Hardware Building, Mason City, Iowa.

North Dakota Retail Hardware Association, Convention (place not yet selected), February 11, 12, 13, 1925. C. N. Barnes, Secretary, Grand Forks.

Montana Implement and Hardware Association, Convention, Helena, February 13, 14, 1925. A. C. Talmage, Secretary-Treasurer, Bozeman.

Pennsylvania and Atlantic Seaboard Hardware Association, Convention and Exhibition, February 16 to 20, 1925, at Philadelphia Commercial Museum. Sharon E. Jones, Secretary, 604 Wesley Building, Philadelphia.

Illinois Retail Hardware Association, Convention and Exhibit, Hotel Sherman, Chicago, February 17 to 19, 1925. Leon D. Nish, Elgin, Illinois, Secretary.

Minnesota Retail Hardware Association, Convention, St. Paul Auditorium, St. Paul, February 17, 18, 19, 20, 1925. C. H. Casey, Secretary, Nicollet Avenue and Twenty-fourth Street, Minneapolis.

New England Hardware Dealers' Association, Convention and Exhibit, Mechanics' Building, Boston, Massachusetts, February 23, 24, 25, 1925. George A. Fiel, Secretary, 10 High Street, Boston.

South Dakota Retail Hardware Association, Exhibit, Coliseum, Sioux Falls, February 24 to 27, 1925. C. H. Casey, Secretary, Nicollet Avenue and 20th Street, Minneapolis, Minnesota.

Michigan Retail Hardware Association, Convention, Grand Rapids, February 24, 25, 26, 27, 1925. Hotel headquarters, Hotel Pantlind. A. J. Scott, Secretary, Marine City.

Michigan Sheet Metal and Roofing Contractors' Association Convention, Detroit, March 2 to 5, Hotel Tuller, F. E. Ederle, 1121 Franklin Street, Grand Rapids, Secretary.

American Hardware Manufacturers' Association convention, Hotel Adolphus, Dallas, Texas, April 21 to 24, 1925. F. D. Mitchell, 1819 Broadway, New York, Secretary.

Arkansas Retail Hardware Association, Convention, Little Rock, May, 1925. L. P. Biggs, Secretary, 815-816 Southern Trust Building, Little Rock.

Southern Hardware Jobbers' Association convention, Dallas, Texas, April 21 to 24, Hotel Adolphus.

## **Retail Hardware Doings**

### **Arkansas**

Otto V. Allen has disposed of his interests in the Van Buren Hardware Company at Fort Smith and has moved to Mansfield, where he will be associated with his father in the Mansfield Hardware Company.

### **Iowa**

N. A. Nasby of Bode, who has been engaged in the hardware and plumbing business in Bode and Humboldt for the past twenty-five or thirty years, and his son, D. A. Nasby of Webster City, have taken over the hardware and plumbing business of August F. Mueller at Webster City.

### **Kansas**

George A. Gingrich has bought the O. C. Ballentine hardware store at Clay Center.

The Nevins Hardware Company of Dodge City has contracted for the purchase of the Goldschmidt Hardware store at Kinsley.

### **Kentucky**

After being connected with the Bardwell Hardware Company, Bardwell, for about thirteen years, W. Lloyd Lynch has severed his connection with that firm and is now manager of the Carlisle Hardware Company, and will have full control. W. Willard Turk succeeds Mr. Lynch at the Bardwell Hardware Company.



**A** CENTURY of square dealing with Architects and Roofers has built up an enviable reputation for the house of Taylor.

The keystone of the good will of the profession and the contractors is the lasting quality of our Target-and-Arrow Roofing Tin (formerly known as "Taylor's Old Style").

You will make no mistake if you insist on Target-and-Arrow *alone*, for all roofing and flashing purposes.

## N. & G. TAYLOR COMPANY

PHILADELPHIA

H. N. TAYLOR, President

*Established in the U. S. A. in 1810 by William, George and Tracy Taylor, descendants of Major John Hanbury of the Hanbury-Tracy family, who introduced the art of tinning into Wales in 1703.*

## ART METAL CEILINGS AND SIDE WALLS

**QUALITY—DURABILITY—BEAUTY**

Are thoroughly combined in **FRIEDLEY-VOSHARDT ART METAL CEILINGS AND SIDE WALLS**. We have added to our list a great number of new and handsome designs. Special designs can be made if desired. Only the *best* of materials used. We are prepared to serve *you*. Ceiling Catalog No. 33 on request.

**DONT DELAY—WRITE TODAY**

**FRIEDLEY-VOSHARDT CO.**

Office:

Factory:

733-737 S. Halsted St. 761-771 Mather Street  
CHICAGO, ILLINOIS

## C. G. HUSSEY & CO.

Rolling Mills and Office, PITTSBURGH, PA.

Manufacturers of

SHEET COPPER, BOTTOMS, ROLL COPPER, TINNED and POLISHED COPPER, NAILS, SPIKES, RIVETS, CONDUCTOR PIPE, EAVES TROUGH, ELBOWS, SHOES, MITRES, CORRUGATED COPPER SHEETS, CRIMPED COPPER SHEETS, COPPER WALL TIES, COPPER LATH, ETC.

Branch Warehouses in New York, Philadelphia, Cincinnati & Chicago  
Member, Copper & Brass Research Association

## IWANS' VOLCANO REVOLVING CHIMNEY TOP

THE design of the deflector brings the wind diagonally upward over the chimney opening through opening in lower part of hood. This construction creates a good draft on any chimney.



Simple iron mountings. Sold without hood so you can make your own tops. Strong, inexpensive and easy swinging.

Write today for catalogs and price list.

**IWAN BROTHERS**

SOUTH BEND, IND.

Manufacturers of Hardware Specialties



Hood Patterns **FREE** with order for iron mountings

## CHICAGO STEEL SLITTING SHEAR

**LIGHT—POWERFUL  
DURABLE**



Capacity 10 gauge sheets  
Any Length or Width  
Flat Bars 3/16x2"  
Weight 22 pounds

**Price \$12.50 Net**

F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel.

Most indispensable high grade shears made. Equal to other shears selling at over twice the price.

**ORDER YOURS TODAY**

**DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago**

# Steel Industry Closing Year Without Change in Recent Conditions

**Strong Tone Prevails in Copper—Other Non-Ferrous Metals Continue Up—Pig Iron Also Advances**

THE midweek reviews of the steel industry show the year is closing without noticeable change from recent conditions. But there is a growing belief that business will be satisfactory throughout the first half of next year, at least.

"The industry is winding up 1924 with production on a high plane," the *Iron Trade* says, "Bookings are heavy and prospects are the best of a year. Mills and furnaces are filled with orders to the extent that present or greater operations for the first quarter are assured. Ingot operations in the Chicago district are up to 87 per cent. Steel production for the whole country is now at 80 to 85 per cent of capacity."

"The more confident leaders in the steel industry now speak with more assurance concerning the first six months of 1925, whereas recently their expressions were limited to the first quarter," the *Iron Age* states. "Expectation of a continuance of the rail and car demand of the railroads is one reason for increasing confidence."

"Some consumers of finished steel are asking for January shipment of a good part of the material bought for the first quarter. Automobile companies have placed fair orders for sheets and strip steel, some covering only for January and others for February or a full quarter. The sheet industry has seen a notable revival of demand since early November, and 1925 now has the appearance of an unusual tin plate year."

## Copper

Business in the outside copper marked was dull but a strong tone prevailed in sympathy with the higher prices asked by some producers.

Electrolytic was quotable at

14.62½ cents f.o.b refinery for prompt and December, 14.67½ cents refinery for January, 14.77½ cents for first quarter and 14.87½ cents refinery for second quarter shipment.

Lake copper was sold at 14.87½ cents delivered in the west, and some producers were asking 15 cents delivered.

## Tin

The New York tin market has been in a quiet but steady condition with buyers at 57.25 cents, sellers at 57.50 cents and a moderate amount of business has been done at 57.37½ cents to 57.50 cents, mainly representing transactions between dealers as consumers have shown very little interest this week or since the price advanced above 56.00 cents.

## Zinc

The market has been carried further along by the foreign advance, and 7.62½ cents East St. Louis is bid by dealers for December-January, and 7.60 cents for February.

The foreign market, while backed by real consumption especially in Germany, is complicated by speculation.

## Solder

Chicago warehouse prices on solder are as follows: Warranted, 50-50, \$35.00; Commercial, 45-55, \$34.25, and Plumbers', \$34.00, all per 100 pounds.

## Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$20.50 to \$21.00; old iron axles, \$27.00 to \$27.50; steel springs, \$22.50 to \$23.00; No. 1 wrought iron, \$17.00 to \$17.50; No. 1 cast, \$17.50 to \$18.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per

pound: Light copper, 10 cents; light brass, 7 cents; lead, 7¾ cents; zinc, 4½ cents, and cast aluminum, 16½ cents.

## Lead

There were two advances last week in the basing price of lead. First, from 9.00 cents to 9.25 cents and secondly, from 9.35 cents New York.

On December 23 another advance in contract basing price of \$3.00 per ton to 9.50 cents New York went into effect.

## Pig Iron

The pig iron market report of Rogers, Brown & Company, is as follows:

"The year-end holidays and inventory period have not cut off the advance in the pig iron market."

Chicago and St. Louis territories are especially active and it is difficult to determine just what might be called the market price in those districts.

First and second quarter in the Chicago district is being sold for between \$23.00 and \$24.00 base, while St. Louis is somewhat higher.

The Birmingham district has also advanced to \$20.00 base. The low sellers in the Jackson County field appear to be satisfied and it is no longer possible to buy Silveries from that district at less than the published schedule, which means practically a dollar advance over the prices recently ruling.

During the week all districts reported respectable tonnage made up chiefly of small lots.

All indications point toward an active buying movement very early in January.

Excellent orders for ferro manganese have been reported and the advance of \$5.00 per ton announced last week is firmly maintained.



## W. A. WHITNEY HAND LEVER PUNCH LINE

*Widest Known  
Most Universally Used*

**BEST BY 15 YEARS TEST. OVER 30,000 IN USE**

Now made in Five Sizes. Capacities from  $\frac{1}{4}$  hole through 16 gauge iron, to 9-16 hole through  $\frac{1}{4}$  plate.



**SIMPLE CONSTRUCTION—FEW PARTS  
POWERFUL—EASY OPERATION  
QUICKLY CHANGED  
CLOSE CORNER PUNCHING**

*Saves Moving Jobs to Shop  
Used Anywhere—With or Without a Vise  
Frequently Pay for Themselves on First Job.*

**NEW "SPEEDY" HOLE CUTTING BIT.** Can Be Used in Any Brace.  
Seven sizes of Double-Cutting blades, to cut holes for  $\frac{1}{2}$  to  $2\frac{1}{2}$  inch pipes.

*Ask your jobber, or write us for circulars and prices on our full line.*



**W. A. WHITNEY MANUFACTURING  
COMPANY**

715 PARK AVE.

ROCKFORD, ILL.



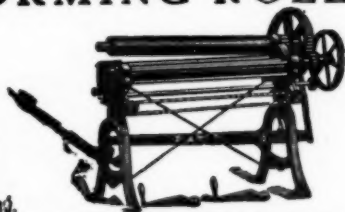
## 50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

*We build a complete line of Shears and Punches, all sizes, for hand or belt power*

*Write for Catalog "R"*

**BERTSCH & CO., Cambridge City, Ind.**



**WHEN** you write to advertisers please mention that you saw it in  
**AMERICAN ARTISAN**

## CHICAGO STEEL CORNICE BRAKES

STANDARD OF THE WORLD



THE BEST BRAKE FOR ALL PURPOSES; Most Durable, Easiest Operated, Low in Price; Made in All Lengths and to Bend All Gauges of Metal. Over 21,000

WRITE FOR PARTICULARS

DREIS & KRUMP MFG. CO., 7404 Loomis Street, CHICAGO

## Plecker's Galvanized Eave Trough and Corrugated Expanding Conductors

Made of  
Keystone  
Copper Bearing  
Steel



Cost no more  
Lasts longer  
Therefore  
Cheapest

**CLARK-SMITH HARDWARE CO. - - PEORIA, ILLINOIS**

**"THE  
STANDARD"**  
VENTILATOR and CHIMNEY CAP

**DOES** away with high stacks, swings freely in the slightest breeze and positively cures down-drafts. The strongest and most efficient combination to be had. Has no equal for chimney purposes. All jobbers sell them—write your jobber or us for prices and catalog today.

Manufactured by  
**STANDARD VENTILATOR CO.**  
LEWISBURG, PA.





# Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

## METALS

### FIG IRON.

Chicago Foundry.....	\$22 50
Southern Fdy. No. 2.....	26 01
Lake Superior Charcoal.....	29 04
Malleable.....	22 50

### FIRST QUALITY BRIGHT

#### TIN PLATES.

IC 20x28 112 sheets	\$26 00
IX 20x28 30-lb.	27 75
IXX 20x28 56 sheets.	14 95
IXXX 20x28	16 05
IXXXX 20x28	17 15

### TERNE PLATES

IC 20x28, 40-lb. 112 sheets	Per Box \$25 10
IX 20x28, 40-lb.	23 00
IX 20x28, 30-lb.	21 30
IX 20x28, 30-lb.	24 20
IX 20x28, 25-lb.	20 30
IX 20x28, 25-lb.	23 20
IX 20x28, 20-lb.	17 80
IV 20x28, 20-lb.	20 65
IX 20x28, 15-lb.	16 55
IX 20x28, 12-lb.	15 25
IX 20x28, 8-lb.	13 55

### "ARMCO" INGOT IRON PLATES

No. 1 ga. up to and including	
1/4 in.-100 lbs.	4 55

### COKE PLATES

Cokes, 80 lbs., base, 20x28.	\$12 70
Cokes, 90 lbs., base, 20x28.	12 95
Cokes, 100 lbs., base, 20x28	13 25
Cokes, 107 lbs., base, IC	
20x28	13 60
Cokes, 135 lbs., base, IX	
20x28	15 40
Cokes, 155 lbs., base, 56	
sheets	8 80
Cokes, 175 lbs., base, 56	
sheets	9 70
Cokes, 195 lbs., base, 56	
sheets	10 65

### BLUE ANNEALED SHEETS.

Base 10 ga. ....per 100 lbs.	\$3 80
"Armco" 10 ga. ....per 100 lbs.	4 60

### ONE PASS COLD ROLLED BLACK

No. 18-20.....per 100 lbs.	\$4 30
No. 22-24.....per 100 lbs.	4 35
No. 26.....per 100 lbs.	4 40
No. 27.....per 100 lbs.	4 45
No. 28.....per 100 lbs.	4 50
No. 29.....per 100 lbs.	4 60

### GALVANIZED.

"Armco" 28.....per 100 lbs.	\$7 00
No. 16.....per 100 lbs.	4 75
No. 18-20.....per 100 lbs.	4 90
No. 22-24.....per 100 lbs.	5 05
No. 26.....per 100 lbs.	5 20
No. 27.....per 100 lbs.	5 35
No. 28.....per 100 lbs.	5 50
No. 30.....per 100 lbs.	6 00

### BAR SOLDER

Warranted.	
50-50.....per 100 lbs.	\$35 00
Commercial.	
45-55.....per 100 lbs.	34 25
Plumbers.....per 100 lbs.	34 00

### ZINC.

In Slabs.....	7 25
---------------	------

### SHEET ZINC.

Oak Lots (600 lbs.).....	12 25
Sheet Lots.....	12 75

### BRASS.

Sheets, Chicago base.....	19 1/2c
Mill Base.....	18 1/2c
Tubing, brazed base.....	23c
Wire, base.....	18 1/2c
Reds, base.....	16 1/2c

### COPPER.

Sheets, Chicago base.....	22c
Mill Base.....	21 1/2c
Tubing, seamless base.....	24 1/2c
Wire, No. 9 & 10 B. & S. Ga.	19 1/2c
Wire, No. 11, B. & S. Ga.	18 1/2c

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

### LEAD.

American Pig.....	\$9 90
Sheet.....	10 90
Full Coils.....per 100 lbs.	13 65
Cut Coils.....per 100 lbs.	14 25

### TIN.

Pig Tin.....per 100 lbs.	58 50
Bar Tin.....per 100 lbs.	60 50

### ASBESTOS.

Paper up to 1/16.....	6c per lb.
Rollboard 3/32 to 1/8.....	6 1/2c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$6.00 per roll

### BRUSHES.

Hot Air Pipe Cleaning.	
Bristle, with handle, each	\$0 35
Flue Cleaning.	
Steel Only, each.....	\$1 25

### BURRS.

Copper Burrs only.....	40%
------------------------	-----

### CEMENT, FURNACE.

American Seal, 5-lb. cans, net	\$ 45
" " 50-lb. cans, " "	90
" " 25-lb. cans, " "	2 00
Asbestos, 5 lb. cans, net.....	45
Pecora.....per 100 lbs.	7 51

### CHIMNEY TOPS

Iwan's Complete Rev. & Vent	30%
Iwan's Iron Mountain only.....	35%
Standard.....	30 to 40%

### CLINKER TONGS.

Front Rank, each.....	\$ 1 75
Per doz.....	18 00

### CLIPS.

Damper.	
Acme, with tail pieces, per doz.	\$1 25
Non Rivet tail pieces, per doz.	25

### COPPERS—Soldering.

#### Pointed Roofing

3 lb. and heavier.....per lb.	40c
2 1/2 lb. ....	45c
2 lb. ....	48c
1 1/2 lb. ....	55c
1 lb. ....	60c

### CORNICE BRAKES

Chicago Steel Bending.	
Nos. 1 to 6B.....	10%

### COUPLING HOSE

Brass.....per doz.	\$2 20
--------------------	--------

### CUT-OFFS.

Kuehn's Korrekt Kutoffs:	
Galv., plain, round or cor. rd.	
Standard gauge.....	40%
26 gauge.....	10%

### DAMPERS.

"Yankee" Hot Air.	
7 inch, each 20c, doz.....	\$1 70
8 " " 25c, " "	2 40
9 " " 30c, " "	2 75
10 " " 32c, " "	3 00

### Smoke Pipe.

7 inch, each.....	\$ 35
8 " ".....	40
9 " ".....	50
10 " ".....	60
12 " ".....	90

### Reversible Check.

8 inch, each.....	\$1 50
9 " ".....	7 70

## DIGGERS.

Post Hole.	
Iwan's Split Handle (Eureka)	
4-ft. Handle.....per doz.	\$14 00
7-ft. Handle.....per doz.	36 00
Iwan's Hercules pattern, per doz.	14 90

### EAVES TROUGH.

Milcor	
Galv. Crimpedge, crated.....	75-5%

### ELBOWS—Conductor Pipe.

Milcor	
Galv., plain or corrugated, round flat.	
Crimp, Std. gauge.....	65%
26 Gauge.....	40%
24 Gauge.....	10%

### Square Corrugated.

Milcor	
Standard gauge.....	50%
26 gauge.....	30%

### Portico Elbows.

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested.....	70 & 5%
Nested solid.....	70 & 5%

### ELBOWS—Stove Pipe.

1-piece Corrugated, Uniform.	
Doz.	
5-inch.....	\$1 40
6-inch.....	1 50
7-inch.....	2 00

### Special Corrugated.

Doz.	
6-inch.....	\$1 35
7-inch.....	1 65

### Uniform, Collar Adjustable.

Doz.	
5-inch.....	\$2 00
6-inch.....	2 10
7-inch.....	2 60

### WOOD FACES—50% off list.

FENCE.	
726-6-12 1/2 (100 rods).....	\$29 02
1948-6-14 1/2 (100 rods).....	44 03

### FILES AND RASPS

Heller's (American).....	50-10%
American.....	50-10%
Arcade.....	50%
Black Diamond.....	49-10-5%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	50%
Simonds.....	60%

### FIRE POTS

Ashton Mfg. Co.	
Complete line	
Firepots and Torches.....	52%

### Otto Bernz Co.

No. 1 Furn. Gasolene with large shield, 1 gal.....	\$ 6 75
No. 6 Furn. Kerosene, 1 gal.	15 12
No. 10 Brazier, Kerosene or Gasolene, 10 gals.	47 52
No. 5 Torch, Gasolene or Kerosene, 1 pt.	7 92
No. 33 Torch, Gasolene, 1 quart	5 40
No. 36 Torch, Gasolene, 1 pint	4 05

### Clayton & Lambert's.

East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....	52%
West of above boundary line.....	48%

Geo. W. Diener Mfg. Co.	
No. 92 Gasolene Torch, 1 qt.	
No. 0250, Kerosene, or Gasolene Torch, 1 qt.	7 50
No. 10 Tinnern's Furn.	12 00
Square tank, 1 gal.	12 00
No. 15 Tinnern's Furn.	12 00
Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace	3 00
No. 110 Automatic Gas Soldering Furnace.....	10 50

Double Blast Mfg. Co.	
Gasolene, Nos. 25 and 36.....	60%

Quick Meal Stove Co.	
Vesuvius, F.O.B. St. Louis	30%
(Extra Dist. for large quantities)	

Chas. A. Hones, Inc.	
Buzzer No. 1.....	\$ 9 00
" " 2.....	12 00
" " 22.....	18 50
" " 42.....	15 00
" " 43.....	19 00

### GALVANIZED WARE.

Pails (Competition), 8 qt.	\$1 95
10-qt. ....	2 20
12-qt. ....	2 40
14-qt. ....	2 75
Wash tubs, No. 1.....	6 20
No. 2.....	7 00
No. 3.....	8 20

### GLASS.

Single Strength, A25-in. bracket	88%
Single Strength A, 34 to 40-in. bracket	86%
Single Strength A, all other brackets	85%
Double Strength A, all sizes	86%

### HANGERS.

Conductor Pipe.	
Milcor Perfection Wire.....	25%
Eaves Trough.	
Steel hangers.....	30%
Triple Twist Wire.....	10%
Milcor Eclipse Wire.....	20%
Milcor Triplex Wire.....	15%
Milcor Milwaukee Extension (ing) List plus.....	15%
Milcor Steel (galv. after forming) List plus.....	12 1/2%
Milcor Selflock E. T. Wire, List plus.....	40%

### HOOKS.

Box.	
V. & B. No. 1, each.....	\$0 25

Conductor.	
Milcor.....	
"Direct Drive" Wrought Iron for wood or brick	15%

Hay.	
V. and B. No. 1, each.....	25

### HUMIDIFIERS.

"Front-Rank," Automatic.	
In single lots.....	50%
In lots of 10 or more.....	50-5%
In lots of 25 or more.....	50-10%
Vapor pans, etc., each.....	50%

### LIFTERS.

Stove Cover.	
Coppered.....per gro.	\$6 00
Alaska.....	4 75

### MALLETS

Tinnern's.	
Hickory.....per doz.	\$2 25

### MITRES

Galvanized steel mitres, and caps, end pieces, outlets.....	30%
Milcor.....	
Galv. one piece stamped.....	40%

### NAILS.

Cut Steel.....	\$4 35
Cut Iron.....	4 35
Wire.	
Common.....	3 25
Cement Coated.....	2 55

## SPECO Soldering Fluxes

Adopted by the U. S. Government

### Speco Soldering Paste

Non-corrosive and protective, quick acting, economical. Contains no sal ammoniac, which is cause of corrosive after-effects. Tested for Radio wires.

Wt. Can	Price	Wt. Can	Price
Ounces	Each	Ounces	Each
2	\$ .15	8	\$ .35
4	.20	16	.60
	Wt. Can Price		
	Pounds Each		
	5		\$2.50



### Speco Soldering Salts

Sales produce vigorous, non-corrosive flux when mixed with water and a little goes a long way. A flux for general work on all metals. Makes a stronger joint than muriatic acid. Uses 3 parts water to 1 part Speco Salts.

Price, 1/2-lb. Cans.....	each	\$ .45
Price, 1-lb. Cans.....	each	.60



Also made in the form of		
Speco Soldering Fluid .....	per gal.	\$1.60
Speco Soldering Sticks .....	each	.15
Speco Soldering Outfits (for Radio).....	each	1.10

Dealers write for prices

**Special Chemicals Co.**

Highland Park, Ill.

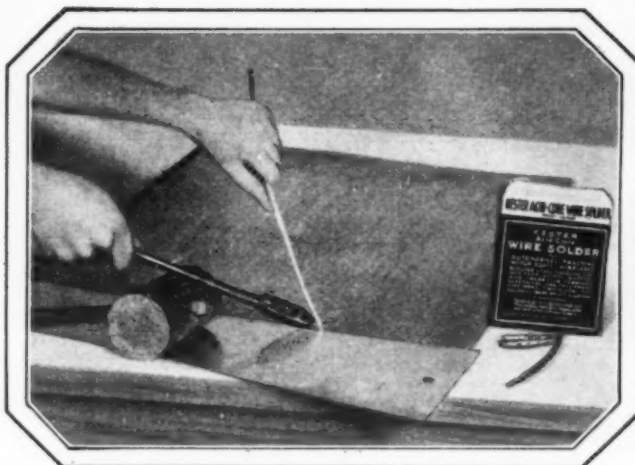
## KESTER SOLDER

Self-Fluxing



(Underwriters' Laboratories Inspected)

**"Requires Only Heat"**

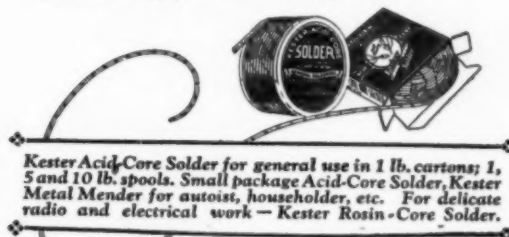


## Flows Under the Seams

IT IS IMPORTANT in Sheet Metal work to have well soldered joints. A difficult job may be well handled to the finish—but if the soldering is weak, the work falls flat.

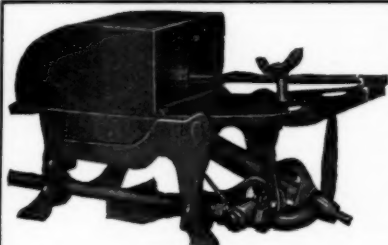
By using Kester Solder, you know your job will last. Inside of this hollow wire solder are tiny pockets full of scientifically prepared flux. This flows to the job just before the solder melts, and you guide it right where you want it.

This eliminates the old acid pot and saves one-third of the time together with labor and material. Kester figures a neat saving for the steady user.



Kester Acid-Core Solder for general use in 1 lb. cartons; 1, 5 and 10 lb. spools. Small package Acid-Core Solder, Kester Metal Mender for autoist, householder, etc. For delicate radio and electrical work — Kester Rosin-Core Solder.

Manufactured by the  
**CHICAGO SOLDER COMPANY**  
4241 Wrightwood Ave.  
CHICAGO, U. S. A.



Thermo No. 2

With or without gravity shut-off. It will take 5 lb. pair. Use No. 3 or No. 6 for all day work. Easily adjusted for a big fire, a medium fire or a small fire.

Write for full particulars

**THERMO GAS FURNACE CO.**  
208 Siegel Street CHICAGO

## THERMOS

Good enough for  
Bell Tell.

Are they good  
enough for you?

**CLEAN,  
RAPID**



Because of noiseless flame, durability and remarkable efficiency Torrid Tinners Furnaces are displacing all others of their type.



**Geo. W. Diener Mfg. Co., Chicago, Ill.**

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## NETTING, POULTRY.

Galvanized before weaving. ....45-10%  
Galvanized after weaving. ....45%

## PASTE.

Asbestos Dry Paste:  
200-lb. barrel .....\$15 90  
100-lb. barrel .....8 00  
35-lb. pail .....3 25  
10-lb. bag .....1 00  
5-lb. bag .....55  
2½-lb. cartons .....30

## PIPE.

Conductor.  
"Interlock" Galvanized.  
Crated and nested (all gauges) .....75-5%  
Crated and not nested (all gauges) .....75%  
Square Corrugated A and B and Octagon.  
29 gauge .....60-10%  
28 " .....60-10%  
26 " .....60-10%  
24 " .....60-10%

"Interlock."  
Crated and nested (all gauges) .....75-5%  
Prices for Galvanized Tonnage Metals, Genuine O. H. Iron, Lyonnais Metal and Keystone C. B. on application.

Per 100 joints  
26 gauge, 6 inch E. C. ....17 00  
26 gauge, 7 inch E. C. ....19 00  
28 gauge, 5 inch E. C. ....14 00  
28 gauge, 6 inch E. C. ....15 00  
28 gauge, 7 inch E. C. ....17 00  
30 gauge, 5 inch E. C. ....12 00  
30 gauge, 6 inch E. C. ....13 00  
30 gauge, 7 inch E. C. ....15 00  
T-Joint Made up  
6-inch, 28 ga. ....per 100 32 50  
Furnace Pipe.  
Double Wall Pipe and Fittings .....40%  
Single Wall Pipe, Round Pipe Fittings .....40%  
Galvanized and Black Iron Pipe, Shoes, etc. ....40%  
Milcor Galvanized .....40-10%  
Lead.  
per 100 lbs. ....\$12 50

## POKERS, STOVE.

Wrt Steel, str't or bent, .....per doz. \$0 75  
Nickel Plated, coil handles .....1 10

## POKERS, FURNACE.

Each .....\$0 50

## PULLEYS.

Furnace Tackle. ....per doz. \$0 60  
" .....per gross 6 00  
" Screw (en-cased). ....per doz. \$0 75  
Ventilating Register.  
Per gross .....9 00  
Small, per pair. ....0 30  
Large, per pair. ....0 50

## PUTTY.

Commercial Putty, 100-lb kits .....\$3 55

## QUADRANTS.

Malleable Iron Damper .....10%

## FLOOR REGISTERS AND BORDERS.

Cast Iron .....20%  
Steel and Semi-Steel .....33½%  
Baseboard .....33½%  
Adjustable Ceiling Ventilators .....33½%  
Register Faces—Cast and Steel.  
Japanned, Bronzed and Plated, 4x6 to 14x14 .....33½%  
Large Register Faces—Cast, 14x14 to 38x42 .....60%  
Large Register Faces—Steel, 14x14 to 38x42 .....60%

## RIDGE ROLL.

Milcor.  
Galv., Plain Ridge Roll, b'd'd .....75-7½%  
Galv., Plain Ridge Roll, crated .....75-5%  
Globe Finalis for Ridge Roll. ....50%

## ROOFING.

Per Square  
Best grade, slate surf. prep'd .....\$5  
Best talc surfaced. ....2 35  
Medium talc surfaced. ....1 65  
Light talc surfaced. ....95  
Red Rosin Sheeting, per ton 55 00

## SCREWS.

Sheet Metal.  
No. 7, ½x½, per gross .....\$0 55  
No. 10, ¾x16, per gross 75  
No. 14, ¾x¼, per gross 90

## SHEARS, TINNERS' &amp; MACHINISTS'.

Viking .....\$22 00

## Lennox Throatless.

No. 18 .....35%  
Shear blades .....10%  
(I. o. b. Marshalltown, Iowa.)

## Peerless Steel Squaring.

Foot Power.  
No. 1—30", 18 ga. cap. ....15%  
No. 2—36", 18 ga. cap. ....15%  
No. 4—52", 18 ga. cap. ....15%  
No. 10—120", 22 ga. cap. ....15%  
No. 4A—52", 16 ga. cap. ....15%

## Cast Iron Foot Power.

No. 01—30", 18 ga. cap. ....15%

## Power Driven.

(No. 100 Series, 2 Shaft Drive.)  
No. 142—42", 18 ga. cap. ....15%  
(No. 200 Series, 2 Shaft Underneath Drive.)  
No. 242—42", 14 ga. cap. ....15%  
(No. 300 Series, 3 Shaft Underneath Drive.)  
No. 342—42", 10 ga. cap. ....15%  
No. 372—72", 10 ga. cap. ....15%  
(No. 500 Series, 3 Shaft Underneath Drive.)  
No. 596—96", 10 ga. cap. ....15%  
(No. 600 Series, 3 Shaft Underneath Drive.)  
No. 6120—120", 3/16" cap. ....15%

## SHOES.

Milcor.  
Galv. Std. Gauge, Plain or corr. round flat crimp. ....65%  
26 gauge round flat crimp. ....40%  
24 gauge round flat crimp. ....10%  
Conductor .....65%

## SNIPS, TINNERS'.

Clover Leaf .....40 & 10%  
National .....40 & 10%  
Star .....50%  
Milcor .....Net

## SQUARES.

Steel and Iron .....Net  
(Add for bluing, \$3.00 per doz. net.)  
Mitre .....  
Try .....  
Try and Bevel .....  
Try and Mitre .....  
Fox's .....per doz. \$6.00  
Winterbottom's .....10%

## STOPPERS, FLUE.

Common .....per doz. \$1 10  
Gem, No. 1. ....1 10  
Gem, flat, No. 3. ....1 00

## VENTILATORS

Standard .....30 to 40%

## WIRE.

Plain annealed wire, No. 8 per 100 lbs. ....3 05  
Galvanized barb wire, per 100 lbs. ....3 90  
Wire cloth—Black painted, 12-mesh, per 100 sq. ft. ....2 10  
Cattle Wire—galvanized catch weight spool, per 100 lbs. ....3 85  
Galvanized Hog Wire, \$0 rod spool, per spool .....3 34  
Galvanized plain wire, No. 9, per 100 lbs. ....3 50  
Stove Pipe, per stone. ....1 10

## WRINGERS.

No. 790, Guarantee per doz. \$55 50  
No. 770, Bicycle " 52 50  
No. 670, Domestic " 48 50  
No. 110, Brighton " 43 50  
No. 750, Guarantee " 55 50  
No. 740, Bicycle " 53 50  
No. 22, Pioneer " 29 00  
No. 2, Superb " 29 00



# VESUVIUS

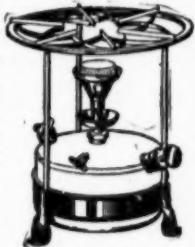
## Blow Torches and Stoves



For Gasoline

have an extremely powerful flame. They are made of the best material that can be obtained and their construction insures long serviceability.

Write for Descriptive Circular Today



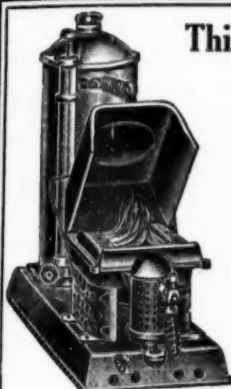
For Coal Oil

## QUICK MEAL STOVE CO.

Div. American Stove Company

825 Chouteau Avenue

St. Louis, Mo.



No. 25 Double Blast Gasoline Fire Pot

## This Is the Fire Pot You Need WHY?

**B** It always burns with a blue flame which produces **THE HEAT**.

**E** A 2½ pound copper will heat and melt solder in **TWO MINUTES**.

**C** The pot will generate and operate outdoors in **ANY KIND OF WEATHER**.

**A** It will heat irons as fast as they are cooled. No time wasted.

**U** Less than a gallon of gasoline is used in a day.

**S** It is smokeless and odorless while in operation.

**E** It can be turned down low when not in use.

Order yours now. Only \$11.00 f. o. b. factory. Two per cent discount when cash accompanies the order.

**DOUBLE BLAST MFG. CO., Inc.**  
Commonwealth Ave. North Chicago, Ill

**W**HEN you are in need of information concerning your retail Stove and Range business and don't know where to get it write to the

**Notes and Queries Dept.**

of

**AMERICAN ARTISAN  
and  
HARDWARE RECORD**

620 South Michigan Avenue  
CHICAGO, ILLINOIS

## Since 1841

Since 1841 in our manufacture of the Coes Knife-Handle Screw Wrench and from the time the Coes Steel-Handle Screw Wrench was first placed on the market, we have always adhered to a firmly fixed policy.

Our policy is never to use materials or employ methods that would add to the cost of the

# COES WRENCH

unless we could positively show where it would add to the *quality* of the finished product.

We are still making and shipping "The simplest wrenches in the plainest packages," so that every Jobber and Dealer can unhesitatingly offer the *most wrench value for the price*.

Sizes: 6 to 21 inches. Any Jobber will supply you.

## COES WRENCH COMPANY

ESTABLISHED 1841 IN

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J. H. Graham & Co. .... 113 Chambers St., New York  
Fenwick Freres. .... 8 Rue de Rocroy, Paris, France



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electrical, rope, barbed, plain, nails (bright and coated), tacks, spikes, bale-ties, hoops, springs, netting, wire fences, steel posts, steel gates, trolley wire, rail bonds, flat wire (strip steel), piano wire, horse shoes, round and odd-shaped wire, screw stock, concrete reinforcement. Aerial Tramways.

Illustrated Books describing uses, Free

## American Steel & Wire Company

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Denver  
New York  
Birmingham  
U. S. STEEL PRODUCTS CO.:  
San Francisco Los Angeles Portland Seattle

Boston  
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Company

## Improved Models of Soldering Furnaces



Have you seen the improved models? The greatest line of Soldering Furnaces today on the market. They should be. There is more experience behind them. Forty-eight years of it! The Gems were popular before the majority of present day furnaces were heard of. It is the oldest, the recognized standard Soldering Furnace today.

Look these models over. Each leads its class. Line them up and take your choice.

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FURNACE CO.**

Improved No. 3 Gem with Pump Department A COLUMBUS, O.

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Forming Machine Corp., Buffalo, N. Y.
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- Ceilings—Metal.**  
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Chicago Furnace Supply Co., Chicago, Ill.  
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Hess-Snyder Co., Massillon, Ohio  
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- American Nickeloid Co., Peru, Ill.**
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- Pecora Paint Co., Philadelphia, Pa.**
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- Manny Heating Supply Co., Chicago, Ill.**
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Clark-Smith Hdw. Co., Peoria, Ill.  
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Dieckmann Co., Ferdinand, Cincinnati, Ohio  
Friedley-Voshardt Co., Chicago, Ill.  
Hussey & Co., C. G., Pittsburgh, Pa.  
Lupton's Sons Co., David, Philadelphia, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
New Jersey Zinc Sales Co., The, New York, N. Y.  
Wheeling Corrugating Co., Wheeling, W. Va.
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Wilder Metal Co., Niles, Ohio
- Posts—Steel Fence.**  
American Steel & Wire Co., Chicago, Ill.
- Punches.**  
Bertsch & Co., Cambridge City, Ind.  
Koch & Co., Paul, Chicago, Ill.  
Peck, Stow & Wilcox Co., Southington, Conn.  
Whitney Mfg. Co., W. A., Rockford, Ill.  
Whitney Metal Tool Co., Rockford, Ill.
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Whitney Metal Tool Co., Rockford, Ill.
- Punches—Hand.**  
Whitney Metal Top Co., Rockford, Ill.  
Whitney Mfg. Co., W. A., Rockford, Ill.
- Patty—Stove.**  
Connors Paint Mfg. Co., Wm., Troy, N. Y.
- Pecora Paint Co., Philadelphia, Pa.**
- Radiator—Auto Core Machines.**  
Standard Equipment Co., Cedar Rapids, Iowa

## \$100.00 in Cash Prizes for Good Sheet Metal Work

COOPERATING with the National Association of Sheet Metal Contractors, the Sheet Steel Trade Extension Committee, the Copper and Brass Research Association and the American Zinc Institute, in their campaign to increase the use of sheet metal for building purposes, AMERICAN ARTISAN offers a series of prizes, totaling \$100.00, for the best photographs and descriptions of sheet metal work as follows:

### FOUR CASH PRIZES

#### FIRST PRIZE

**\$50.00**

#### SECOND PRIZE

**\$25.00**

#### THIRD PRIZE

**\$15.00**

#### FOURTH PRIZE

**\$10.00**

### RULES OF CONTEST

THE contest is open to everybody except employees of AMERICAN ARTISAN, and any number of photographs may be submitted by any contestant. Photographs and descriptions of Metal Roofs, Cornices, Ceilings, etc., especially featuring installations that have given unusually long service or especially good service under exceptional circumstances are desired. Photographs must be securely wrapped and marked "Sheet Metal Contest," and addressed to AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago.

WITH each photograph must be enclosed a description giving the name of the sheet metal contractor who installed the work; the kind of sheet metal used; the circumstances under which it was done, as for example where sheet metal replaced any other material; also such other information as may be of interest.

NO mark of identification must appear on the photographs except a "key name," the duplicate of which must be enclosed in a separate envelope, together with the name and address of the contestant. No limit on the number of photographs submitted, but all must be identified as noted here.

### THE CONTEST WILL CLOSE MARCH 15, 1925

No photographs received later than midnight of March 15, 1925, will be considered in making the award. All photographs entered in this contest will be considered the property of AMERICAN ARTISAN unless otherwise provided for by the contestant in each case, and all will be subject to reproduction in AMERICAN ARTISAN in its campaign to increase the use of sheet metal for building and other purposes.

### AMERICAN ARTISAN AND HARDWARE RECORD

620 South Michigan Avenue

Chicago, Illinois



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Quick Meal Stove Co., St. Louis, Mo.  
Richardson & Boynton Co., New York, N. Y.  
Thatcher Furnace Co., New York, N. Y.
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Cox Stove Co., Abram, Philadelphia-Chicago  
Quick Meal Stove Co., St. Louis, Mo.
- Register Shields.**  
Hall-Neal Furnace Co., Indianapolis, Ind.
- Registers—Warm Air.**  
American Wood Register Co., Plymouth, Ind.  
Auer Register Co., Cleveland, Ohio  
Carr Supply Co., Chicago, Ill.  
Chicago Furnace Supply Co., Chicago, Ill.  
Eaglesfield Ventilator Co., Indianapolis, Ind.  
Hart & Cooley Co., New Britain, Conn.  
Henry Furnace & Fdy. Co., Chicago, Ill.  
Manny Heating Supply Co., Cleveland, Ohio  
Mueller Furnace Co., L. J., Des Moines, Iowa  
Quick Furnace & Supply Co., Milwaukee, Wis.  
Rock Island Register Co., Rock Island, Ill.  
Standard Furnace & Supply Co., Omaha, Neb.  
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Walworth Run Fdy. Co., Cleveland, Ohio  
Waterloo Register Co., Waterloo, Iowa
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American Wood Register Co., Plymouth, Wis.  
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Eaglesfield Ventilator Co., Indianapolis, Ind.
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Honeywell Htg. Specialties Co., Wabash, Ind.
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Milwaukee Corrugating Co., Milwaukee, Wis.
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- Roasters.**  
Lalace & Grosjean Mfg. Co., Chicago, Ill.
- Rods—Stove.**  
Kirk-Latty Mfg. Co., Cleveland, Ohio
- Rolls—Forming.**  
Bertsch & Co., Cambridge City, Ind.
- Roofing Cement.**  
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Pecora Paint Co., Philadelphia, Pa.
- Roof—Flashing.**  
Hessler Co., H. E., Syracuse, N. Y.  
Milwaukee Corrugating Co., Milwaukee, Wis.
- Roofing—Aluminum Alloy**  
Wildner Metal Co., Niles, Ohio
- Roofing—Iron and Steel.**  
American Rolling Mill Co., Middletown, Ohio  
Berger Mfg. Co., The, Canton, Ohio  
Burton Co., W. J., Detroit, Mich.  
Cortright Metal Roofing Co., Philadelphia, Pa.  
Friedley-Voshardt Co., Chicago, Ill.  
Inland Steel Co., Chicago, Ill.  
Merchant & Evans Co., Philadelphia, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
United Alloy Steel Co., Canton, Ohio  
Wheeling Corrugating Co., Wheeling, W. Va.
- Roofing—Tin.**  
Taylor Co., N. & G., Philadelphia, Pa.
- Roofing—Zinc.**  
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- Rubbish Burners.**  
Hart & Cooley Co., New Britain, Conn.
- Sal-Ammoniac.**  
Special Chemicals Co., Highland Park, Ill.
- Schools—Sheet Metal Pattern Drafting.**  
St. Louis Technical Institute, St. Louis, Mo.
- Screens—Perforated Metal.**  
Harrington & King Perforating Co., Chicago
- Shears—Hand and Power.**  
Kutscheid Mfg. Co., Chicago, Ill.  
Manufacturers Brush Co., The, Cleveland, Ohio  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Peck, Stow & Wilcox Co., Southington, Conn.  
Viking Shear Co., Erie, Pa.
- Sheets—Aluminum Alloy.**  
Wildner Metal Co., Niles, Ohio
- Sheets—Black and Galvanized.**  
American Rolling Mill Co., Middletown, Ohio  
Inland Steel Co., Chicago, Ill.  
Merchant & Evans Co., Philadelphia, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Taylor Co., N. & G., Philadelphia, Pa.  
United Alloy Steel Corp., Canton, Ohio  
Wheeling Corrugating Co., Wheeling, W. Va.
- Sheets—Iron.**  
American Rolling Mill Co., Middletown, Ohio
- Merchant & Evans Co., Philadelphia, Pa.**
- Sheets—Tin.**  
Merchant & Evans Co., Philadelphia, Pa.  
Taylor Co., N. & G., Philadelphia, Pa.
- Sheets—Zinc.**  
New Jersey Zinc Sales Co., The, New York, N. Y.
- Shingles—Zinc.**  
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- Sifters—Ash.**  
Diener Mfg. Co., G. W., Chicago, Ill.
- Sifters—Flour.**  
Meyers Mfg. Co., Fred J., Hamilton, Ohio
- Sky Lights.**  
Burton Co., W. J., Detroit, Mich.  
Milwaukee Corrugating Co., Milwaukee, Wis.
- Smoke Pipe—Cast Iron.**  
Waterloo Register Co., Waterloo, Iowa
- Snips.**  
Manufacturers Brush Co., The, Cleveland, Ohio
- Solder.**  
Chicago Solder Co., Chicago, Ill.  
Milwaukee Corrugating Co., Milwaukee, Wis.
- Soldering Furnaces.**  
Bernz Co., Otto, Newark, N. J.  
Burgess Soldering Furnace Co., Columbus, Ohio  
Clayton & Lambert Mfg. Co., Detroit, Mich.  
Diener Mfg. Co., G. W., Chicago, Ill.  
Double Blast Mfg. Co., North Chicago, Ill.  
Hones, Inc., Chas. A., Baldwin, Long Island, N. Y.  
Quick Meal Stove Co., St. Louis, Mo.  
Thermo Gas Furnace Co., Chicago, Ill.
- Soldering Supplies.**  
Special Chemicals Co., Highland Park, Ill.
- Specialties—Hardware.**  
Diener Mfg. Co., G. W., Chicago, Ill.  
Hessler Co., H. E., Syracuse, N. Y.
- Stars—Hard Iron Cleaning.**  
Fanner Mfg. Co., Cleveland, Ohio
- Statuary.**  
Friedley-Voshardt Co., Chicago, Ill.  
Gerock Bros. Mfg. Co., St. Louis, Mo.
- Stove Pipe Reducers.**  
Allred Mfg. Co., Indianapolis, Ind.
- Stoves—Camp.**  
Quick Meal Stove Co., St. Louis, Mo.
- Stoves—Gasoline and Oil.**  
Quick Meal Stove Co., St. Louis, Mo.
- Stoves and Ranges.**  
Bridge & Beach Mfg. Co., St. Louis, Mo.  
Cox Stove Co., Abram, Philadelphia-Chicago  
Globe Stove & Range Co., Kokomo, Ind.  
Gohmann Bros. & Kahler, New Albany, Ind.  
Michigan Stove Co., The, Detroit, Mich.  
Oakland Foundry Co., Belleville, Ill.  
Quick Meal Stove Co., St. Louis, Mo.  
Richardson & Boynton Co., New York, N. Y.  
Rock Island Stove Co., Rock Island, Ill.  
Thatcher Furnace Co., Chicago, Ill.
- Tacks, Staples, Spikes.**  
American Steel & Wire Co., Chicago, Ill.
- Temperature Regulators**  
Honeywell Htg. Specialties Co., Wabash, Ind.
- Tile Cement—Elastic.**  
Pecora Paint Co., Philadelphia, Pa.
- Tiles and Shingles—Metal.**  
Burton Co., W. J., Detroit, Mich.  
Cortright Metal Roofing Co., Philadelphia, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Thomas & Armstrong Co., The, London, Ohio
- Tinplate.**  
Berger Mfg. Co., The, Canton, Ohio  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Taylor Co., N. & G., Philadelphia, Pa.
- Tin—Perforated.**  
Harrington & King Perforating Co., Chicago, Ill.
- Tools—Tinsmith's.**  
Bertsch & Co., Cambridge City, Ind.  
Chicago Elbow Machine Co., Oak Park, Ill.  
Dreis & Krump Mfg. Co., Chicago, Ill.  
Forming Machine Corp., Buffalo, N. Y.  
Koch & Co., Paul, Chicago, Ill.  
Kutscheid Mfg. Co., Chicago, Ill.  
Manufacturers Brush Co., The, Cleveland, Ohio  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Peck, Stow & Wilcox Co., Southington, Conn.  
Viking Shear Co., Erie, Pa.  
Whitney Mfg. Co., W. A., Rockford, Ill.  
Whitney Metal Tool Co., Rockford, Ill.
- Torches**  
Bernz Co., Otto, Newark, N. J.  
Burgess Soldering Furnace Co., Columbus, Ohio  
Clayton & Lambert Mfg. Co., Detroit, Mich.  
Diener Mfg. Co., G. W., Chicago, Ill.  
Double Blast Mfg. Co., North Chicago, Ill.  
Hones, Inc., Chas. A., Baldwin, Long Island, N. Y.  
Quick Meal Stove Co., St. Louis, Mo.
- Trade Extension.**  
Sheet Steel Trade Extension Committee, Pittsburgh, Pa.
- Transit Companies.**  
The Cleveland & Buffalo Transit Co., Cleveland, Ohio
- Trimnings—Stove.**  
Fanner Mfg. Co., Cleveland, Ohio
- Ventilators**  
Aeolus Dickinson Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Friedley-Voshardt Co., Chicago, Ill.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Standard Ventilator Co., Lewisburg, Pa.  
Thomas & Armstrong Co., The, London, Ohio
- Ventilators—Ceiling.**  
Hart & Cooley Co., New Britain, Conn.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Tuttle & Bailey Mfg. Co., New York
- Water Heaters.**  
Charles Smith, Chicago, Ill.
- Wire—Electrical.**  
American Steel & Wire Co., Chicago, Ill.
- Wire Hoops.**  
American Steel & Wire Co., Chicago, Ill.
- Wire Rope.**  
American Steel & Wire Co., Chicago, Ill.
- Wrenches.**  
Coes Wrench Co., Worcester, Mass.
- Zinc—Nickel Coated**  
American Nickeloid Co., Peru, Ill.  
Apollo, Inc., La Salle, Ill.
- Zinc.**  
Merchant & Evans Co., Philadelphia, Pa.  
New Jersey Zinc Co., The, New York, N. Y.

## WANTS AND SALES

For paid yearly subscribers, **AMERICAN ARTISAN AND HARDWARE RECORD** will insert under this head advertisements of not more than fifty words **WITHOUT CHARGE**. Employers wishing to secure employees, parties desiring to purchase or sell business, secure partners, or to exchange, etc., will find that these pages offer excellent opportunities to satisfy their wants. Clerks and tinsmiths looking for situations will find it to their advantage to use these columns. Those who respond to these announcements please mention that they "**READ THE ADVERTISEMENT IN AMERICAN ARTISAN AND HARDWARE RECORD.**"

## BUSINESS CHANCES

**LIGHTNING RODS**—Dealers who are selling Lightning Protection will make money by writing us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable is endorsed by the Mutual Insurance Companies and the National Board of Fire Underwriters. Write today for samples and prices. **L. K. DIDDLE CO., Marshfield, Wis.**

For Sale—One Herrendeen hot water boiler, 750 feet capacity. Also 160 feet of radiation 13' high. Address A-76, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 23-3t

For Sale—An A-1 Heating, Plumbing and Sheet Metal establishment. Established in 1910. The only shop in a town of 2,500 inhabitants. Big territory to draw from. Water Works and Sewer System in town. A complete set of tools and machines. Made good and am anxious to retire. Address Karl Moser, Harvey, North Dakota. 25-3t

For Sale—Heating, Ventilating and Roofing Concern in city of 27,000—established 12 years. Large clientele of General Contractors, Architects and Railroads. One of the best equipped shops in State of Iowa. Poor health, reason for selling. Investigate. Small capital will handle first payment. Address A-83, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Ill. 25-3t

For Sale—Well established Heating and Sheet Metal Business in a good town 50 miles from Chicago. On account of health, will give a practical man a good layout with a small deposit down. For further particulars Address Box 424, Plano, Ill. 25-3t

For Sale—Heating, plumbing, sheet metal, pump, windmill, etc. Business in live town in good farming section. Established 14 years. Work year around and paying business for live man, even in these times. Includes one story building, stock, tools, equipment, and truck. Priced low. Reasons for selling are —poor health. Lock Box 291, Wingate, Indiana. 26-3t

For Sale—Auto sheet metal and radiator repair shop located in a busy city of 22,000 population. Only two shops of this kind in a radius of 50 miles. A bargain if taken at once. Good reasons for selling. Write for particulars. Auto Sheet Metal Company, 179 East Fourth Street, Winona, Minnesota. 26-3t

For Sale—Sheet Metal and furnace shop, complete set tools, stock and good truck. Including modern house and shop building on lot 3½x10 rods. The shop is large enough for plumbing in connection. This is good income property. Very close in, don't miss it, a real bargain. Address F. G. Oberlin, 214 South Larch Street, Lansing, Michigan. 26-3t

Wanted to Buy—A Hardware and Furnace business doing more than \$35,000 per year. Full particulars, etc., in first letter. Address A-82, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Ill. 25-3t

For Sale—Sheet Metal Shop used 5 years. A bargain. Phone Brunswick 0838 or address Oakley Sheet Metal Works, 1540 North Ashland Avenue, Chicago, Ill. 25-3t

## HELP WANTED

Wanted—After January 1st, good all-around furnace man and plumber, capable of doing hot air, hot water, steam or vapor heating, tinner and plumber. Good references must be furnished. Married man preferred. Will give steady employment to right man who is competent. Address A-81, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 24-3t

Wanted—Sheet metal worker who also can do auto radiator repair work. \$6.00 per 8 hours. Steady job to right man. Sterling Sheet Metal and Roofing Company, Sterling, Colorado. 24-3t

Wanted—A first class plumber and heating man who is a good lead worker and figure jobs, in other words, take complete charge of the plumbing and heating department. This is a dandy job for the right man in one of the best towns in the state of Colorado. A chance to buy an interest if desired. Give age, references, etc. Steady job. Address A-75, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 23-3t

## SITUATION WANTED

Situation Wanted—Sheet metal worker. Considered expert shop mechanic. Thorough experience in nearly all lines. Working twelve gauge steel down to ornamental copper and zinc work. Can get out heating, ventilating and all other building work which will fit the job. Also handle the installation work if wished. Married. Age 33 and do not drink. Address A-78, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 23-3t

Situation Wanted—Sheet metal executive with practical knowledge of laying-out and ability to speed up production, wants permanent position with going concern in or out of the city. Open shop preferred. Married, 32 years of age. Available December 5th. Correspondence invited. Address A-73, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 22-3t

Situation Wanted—Tinner, furnace man and sheet metal worker. State wages in first letter. Nothing but steady job considered. Address Tinner, 415 23rd Avenue, Moline, Illinois. 24-3t

Situation Wanted—By all around metal worker and furnace man; 14 years' experience. Can lay out some patterns and get work out. Prefer inside and furnace work, but will take general work if steady. State wages and whether steady work. Address Box 441, Fort Wayne, Indiana. 24-3t

Situation Wanted—By tinner, hardware, pump, windmill and implement man. Also do radiator work. Address 433 S. Oak Street, Wichita, Kansas. 24-3t

Situation Wanted—At once or by first of year, as all-around tinner, plumber, and heating man. 8 years' experience. Prefer Minnesota or Dakotas. Address A-82, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 24-3t

Situation Wanted—At once by tinner, furnace and hardware man with 17 years experience. Married; want steady work. Prefer Iowa. Address 726 Cottage Street, Waterloo, Iowa. 25-3t

Situation Wanted—After February first I would like to obtain employment with a Retail Hardware firm as clerk or handy man. I am married and have had fifteen years' experience in hardware, sheet metal and implement business. I have a set of tinner's tools that I could furnish if some firm could use me with the tools. I would prefer work in a town of less than 6,000 in Illinois, Iowa or Indiana. Address A-85, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

Wanted—A position by an experienced tinner and furnace man, married and have family, age 36, prefer position in southern Iowa, am honest and industrious and all that I ask is a reasonable wage. Address Murrell Stoler, Oskaloosa, Iowa. 26-3t

## TINNERS' TOOLS

Splendid chance to buy a complete set of tinner's tools and machinery to start in business or will trade for closed automobile. No reasonable offer refused. P. Tagholm, Reliable Sheet Metal Works, Wheaton, Illinois. Tele. Wheaton 864. 24-3t

Wanted to buy—One crimping machine, one elbow machine, one iron folder, one bar folder, one square shears and stakes. Give price of each item and lot price. Write A-79, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 24-3t

For Sale—One pair of 42-inch squaring shears in good shape. Blades just ground and set. Reasonable. Address William Godwin, East Connersville Tin Shop, Connersville, Indiana. 25-3t

Wanted—A second-hand Chicago elbow machine. Address A-80, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 24-3t

For Sale—A 10-foot brake in good condition. Price, \$100.00 f. o. b. Columbia, Mo. It is a double truss brake. H. J. Gribble, 24 North 9th St., Columbia, Mo. 24-3t

## BOOKS

Order your books now with your renewal to **AMERICAN ARTISAN**. You can save 10 per cent on your total purchase. Subscription to **AMERICAN ARTISAN** is \$5.00 for 3 years. Take advantage of this saving also.

**FREE—FREE**—We will send **FREE** to every Sheet Metal Contractor in the country who will write us, a copy of our new 10-page book catalog which lists the best Trade Books and Patterns to be had. The first page of this catalog tells how to save money on your book purchases. Write for your copy today. **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

Estimating Sheet Metal work is the name of this reliable book by Neubecker and Hopp. It is a new edition of a most practical self-instruction book published with construction work in light and heavy gauge metal, skylights and roofing and cornice work. This book is bound in flexible cloth binding, measures 4½ x7 inches. It has 224 figures, contains 428 pages. Price, \$3.00. Order your copy from Book Department, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

The book, "Home Instruction for Sheet Metal Workers," by William Neubecker, and edited by Frank X. Morio, contains facts that you want to know and know how to use. A practical instruction manual for the apprentice, mechanic and master sheet metal worker, covering the course of instruction given students in the sheet metal department at the New York Trade School. Cutting, forming, preparing full-size details from architects' blueprints, developing patterns, and bending on the brake and setting the work together. Chapters on skylight and pitched skylights, stationary and movable louvers, turret sash, gearing, etc. 400 pages, 684 illustrations, bound in cloth, with 15 folding plates bound separately. Price \$5.00. Order from the Book Department, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

## Only First Class Mail

*Firms or individuals who reply to advertisements bearing a Box Number in care of this publication should send all printed matter by first class mail.*



**Special Notices** — displayed want ads—are charged at the rate of \$3.00 per inch per insertion.

## PATENTS

**HUBERT E. PECK**  
Patent Attorney  
Barrister Bldg., WASHINGTON, D. C.

### 3 Furnace Salesmen

Wanted by January First, 1925, to fill vacancies in Eastern, Central and Western territories.

The men we need are successful salesmen and have been earning a real salary. They are not "job hunters," yet they are on the alert for a bigger opportunity where rewards are in proportion to results.

They will have the advantage of selling a complete line of Warm Air Furnaces, pipe and pipeless, registers and furnace fittings, also boilers and accessories, with distinctive selling features.

They will know how to apply to the dealers' profit the unique dealer service and the advertising we furnish.

A permanent and profitable connection is offered to salesmen measuring up to these qualifications. Your communication will be treated in confidence.

**L. J. Mueller Furnace Company,**  
193 Reed Street, Milwaukee, Wisconsin

### FURNACE SALESMAN WANTS POSITION

I would like a position as stove or furnace salesman for 1925. Years of retail and road experience. 45 years of age. Prefer Iowa or Nebraska. Address M-55, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### COMMISSION SALESMEN WANTED

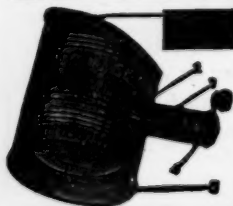
all or part time, to handle high grade furnace on a commission basis in Kansas, Missouri, Ohio, North and South Dakota. Address M-58, Care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### Furnace Salesman Wants Situation for 1925

Illinois territory preferred. Several years' experience selling through dealers and assisting them with installation and closing sales. Competent and reliable. Address M-47, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### WANTED

High class salesman as associate, traveling Iowa and Missouri River points, calling on the jobbing and manufacturing trade. Have very good lines myself, but am unable to make the territory as often as necessary. A splendid opportunity for the right man. Address M-51, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.



### HUNTER'S SIFTER

"The Genuine"  
A good seller at all times.  
Write today for complete catalog  
**FRED J. MEYERS**  
MFG. CO.  
HAMILTON, OHIO

## SPECIAL NOTICES

### BOILER AND FURNACE SALESMEN WANTED

Manufacturer of well known trade mark line of boilers and furnaces, re-arranging territories for 1925. Now ready to negotiate for sales representatives in the following districts:

Northern Indiana and Eastern Michigan  
Northern Illinois  
Western Wisconsin and Eastern Minnesota  
Iowa and Eastern Nebraska.

Can submit attractive proposition to men who are producers and desire a permanent connection. Address X, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### STOVE AND FURNACE SALESMAN WANTED

A live, wide awake concern, in re-arranging its territory requires the services of a stove and furnace salesman to work in Ohio, Indiana, and Iowa. Most of the territory has been worked and is in good condition. Write at once, stating experience, giving references. Address M-59, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### STOVE SALESMAN WANTS POSITION

I am looking for a good line of Base Burners and Oil Stoves for Chicago territory for 1925 on commission basis. Can produce results. All references. Address M-60, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### WANTED, EXPERIENCED STOVE SALESMAN

for Wisconsin. Give full details. Address M-57, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### WANTED, LIVE FURNACE SALESMAN

For states of Illinois, Indiana and Ohio. Advise fully. M-56, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

### FURNACE AND BOILER SALESMAN WANTS POSITION FOR 1925

Twelve years road experience. Thoroughly familiar with the heating business and its problems. Not a high pressure artist but a good, steady worker. Prefer Middle West. 40 years of age. Address M-54, care AMERICAN ARTISAN, Chicago, Ill.

### The "CENTENNIAL" Rain-Water Cut-Off

The strongest, most durable and cheapest CUT-OFF on the market.

The only single cut-off made to fit Corrugated and plain pipe and which can be used without extra pipe or elbows.

FOR SALE BY ALL LEADING JOBBERS

Manufactured only by

**ALLRED MFG. CO.**

Successor to SULLIVAN-GEIGER CO.

501-509 Madison Ave., INDIANAPOLIS, IND.



## SPECIAL NOTICES

### SALESMEN WANTED

Old established manufacturer of a high grade line of Gas Ranges, Combination Coal-Gas Ranges, Wood and Coal Ranges, Heaters and Furnaces, has openings for salesmen in states of New York, Pennsylvania, Illinois, and Iowa.

Applicants must be experienced stove salesmen and have a wide acquaintance in the territory applied for. Can offer salary or commission contract. Give full particulars as to past experience, age and annual business booked.

**The Independent Stove Company,**  
Owosso, Michigan.

Will Henry Dehn who learned the tin smith trade with Reimer Claussen write him at Davenport, Iowa?

### REAL STOVE SALESMAN WANTED

To handle a complete line of Gas Ranges, Heating Stoves and Combination Stoves. We have an attractive proposition for the right man. Give full details in first letter. The L. A. Althoff Manufacturing Company, LaPorte, Indiana.

### ONLY FIRST CLASS MAIL

Firms or individuals who reply to advertisements bearing a Box Number in care of this publication should send all printed matter by first class mail.

## TO OUR

Old friends, loyal and true, to our valued new friends,—and to those whose friendship we strive to deserve, we heartily wish unmeasured happiness and good fortune throughout the coming years.

With grateful appreciation for all the favors received by us from you, and for that priceless, though intangible asset, your good-will, which we prize beyond measure, we seek to merit your continued confidence and aim to serve you helpfully in the future.

A Happy New Year to one and all.

**APOLLO, INC.**  
LASALLE ILLINOIS



